THE SEMANTICS OF THE ENGLISH PROGRESSIVE

by

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(1985)

Submitted to the Department of Linguistics and Philosophy
in Partial Fulfillment of the Requirements
for the Degree of

DOCTOR OF PHILOSOPHY

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February 1991

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Abstract

This thesis proposes that the English progressive semantically modifies the relation between events and times, and that this semantics uniformly underlies a variety of apparently disparate readings of the progressive. Chapter 2 begins with Jespersen's observation that the progressive presents an event as a temporal frame around a given time. This intuition may be expressed as follows: where t is a given time, and t' is the time of an event e, a progressive sentence reporting e asserts that t', the event time, properly contains the framed time t. On this view, a progressive sentence entails the existence of an event of greater duration than the framed time t. I demonstrate that the temporal frame reading is not an entailment of the progressive but arises by impli   the existence of an event of greater duration than the framed time is implicated but not entailed. I also show that restrictions on the framed time t proposed elsewhere, claiming that t must be an instant, or that t must be non-initial and non-final in t', are incorrect.

Drawing on the contrasting readings of present progressive sentences and simple present tense sentences with event predicates, it has also been claimed that the progressive has a metaphysical character, reporting actual phenomena, while the simple present tense, interpreted as a habitual predication, reports characteristics of the "structure of the world". I argue that the progressive/non-progressive contrast in the present tense is basically temporal: the progressive, unlike the (habitual) simple present tense, explicitly dates or temporally locates reported events. The different readings at issue follow by implicature arising from this contrast.

In Chapter 3 I address certain problems with the progressive of state predicates, including habituals. Having argued that the progressive is not ill-formed or false with state predicates per se, I offer an account of the temporary or limited duration reading of progressive state predicates in terms of the implicature outlined in Chapter 2 for the progressive/non-progressive contrast in the present tense. Drawing also on a modified version of Carlson's (1977) distinction between individual-level and stage-level predications, I argue that where a simple tense state predicate has the individual-level reading, the progressive form implicates temporariness because it explicitly dates or temporally locates the state described. I

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also review a class of psychological state predicates, and argue that certain of these resist the progressive because the explicit dating of a state or event expressed by the progressive is anomalous.

A very old traditional observation, holding that the progressive is a "definite tense", contrasting with the "indefinite" perfect, is addressed in Chapter 4; definite tense forms make reference to specific times and indefinite forms to non-specific times. This classification is seen as resting on the pre-Russellian view of the articles a and the, developed more recently as the Familiarity Theory of Definiteness. I argue for a quantificational analysis of the novelty and familiarity effects, and claim that the original definite/indefinite classification of verb forms should be captured by differences in the quantification over times. In present perfect sentences event times are existentially quantified, and in progressive sentences the framed time is bound by quantificational the.

Finally, in Chapter 5 I discuss the Imperfective Paradox, and the two main types of response to it. Dowty (1979) is the chief example of the first approach, which is to analyse the progressive as a kind of counterfactual. I explore what I consider to be the essential components of this view, and argue that certain inadequacies indicate the correctness of the second view. The second view holds that the paradox is only apparent, as the predicate found in a progressive sentence is not the same as the predicate in the corresponding non-progressive sentence; the troublesome entailments are not valid on this view. I present additional evidence for the second view and also argue that the two distinct readings are found in the uninflected predicate, which is ambiguous.

Thesis Advisor: James Higginbotham
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Acknowledgements

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This thesis is dedicated

to my mother

Patience Elliott Kearns

CONTENTS

CHAPTER 1

GENERAL INTRODUCTION

Of all the English verb forms, the progressive has perhaps the

most interesting semantic properties, with the perfect as a

close runner-up. The interest stems largely from the variety

of apparently disparate semantic phenomena presented by the

progressive, for which, to my knowledge, no overall account

has been offered in terms of a uniform semantics for the

progressive. The aim of this thesis is to present a single

definition for the progressive and show how the various

readings follow from the definition. The central points to be

dealt with will be introduced below.

The readings of the progressive to be discussed throughout

this work have long been a part of the general lore of studies

of English (and in some cases of other languages as well). In

my own exploration of the data I am chiefly indebted to Allen

(1966), Diver (1963), Emonds (1975), Hatcher (1951),

Huddleston (1984), Leech (1969,1971), Mittwoch 91988), Palmer

(1987) and Scheffer (1975), and we are all indebted to Otto

Jespersen.

In the modern period, Jespersen (1932:178-80) first pointed

out that the progressive presents an event as a temporal frame

around some other time or event, as illustrated in (1).

(1)a. Mary was making coffee when John arrived.

   b. Mary was making coffee at three o'clock.

   c. Mary made coffee when John arrived.

   d. Mary made coffee at three o'clock.

In interpreting the simple tense sentences in (1c,d) we understand the time given by the adverbial, the time of John's arrival or three o'clock, to fall at the beginning of the event of Mary's making coffee. In contrast, the progressive sentences in (1a,b) present the coffee-making event as temporally framing the time denoted by the adverbial; the time of John's arrival and three o'clock fall within the coffee-making event. This observation, that the progressive presents an event as a temporal frame, or alternately, that the progressive takes us "inside" an event, was the starting point for recent formalisations of the progressive semantics, beginning with Bennett and Partee (1978).

A different contrast between the progressive and non-progressive verb forms is noted in the present tense. The simple present tense of action verbs, as in (2a), has the habitual reading, and does not assert that any event of the kind described is in progress at the time of utterance. The present progressive in (2b), on the other hand, asserts that

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an event of Mary's reading the Globe is in progress at the
time of utterance.

(2)a. Mary reads the Globe.

   b. Mary is reading the Globe.

Goldsmith and Woisetschlaeger (1982) respond to this contrast
by attributing a semantically phenomenological character to
the progressive.

The temporal frame reading of the progressive and the
progressive vs non-progressive contrast in the present tense
are discussed in Chapter 2, where I propose a semantics for
the progressive from which the temporal frame reading follows
by implicature but is not entailed. The basic semantics is
extended to the present progressive, taking the framed time to
be the time of utterance, and it is shown that although the
framing reading is perhaps strongest with the present
progressive, because the framed time is a moment, even with
the present progressive the framing reading is not entailed.

Not all predicates take the progressive freely, and some
predicates appear to resist the progressive absolutely. Most
of the progressive-resistant predicates are state predicates,
as illustrated below.

(3)a.# John was knowing the answer.

b.# That cupboard is only containing cleaning equipment.

c.# Jones is owning those three buildings.

d.# Mary is being tall.

Examples such as those in (3) underly a common intuition that

many predicates resist the progressive because they are state

predicates, and the progressive is in some way incompatible

with states. Taylor (1977), for example, offers definitions

for state predicates and for the progressive on which the

truth condition for a progressive state predicate is a

contradiction, and thus sentences like (3) are always false.

The intuition of the connection between states and

progressive-resistance also led Lakoff (1965) to include the

lack of progressive forms as one of the diagnostic criteria

for his stative predicates. Other writers, however, point out

that many state predicates take the progressive, and that the

progressive of state predicates is true of temporary states,

in contrast to the corresponding simple tense form, true of

enduring, often characteristic, states. The contrast between

temporary and permanent states is also observed with habitual

predications.

(4)a. The statue is standing in the plaza.

b. The statue stands in the plaza.

c. Jones is living in London.

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d. Jones lives in London.

e. Mary is working at Bellcore.

f. Mary works at Bellcore.

The relationship between state predicates and the progressive
is explored in Chapter 3, where I argue that the temporary or
limited duration reading of progressive state predicates
follows from the explicit temporal locatedness of states and
events asserted by progressive sentences. The temporary state
reading follows by implicature arising from the contrast with
the corresponding simple tense forms of the predicates at
issue, which are true of permanent states. The distinction
between temporary and permanent states (or properties) is
compared to Carlson's (1977) distinction between stage-level
and individual-level predications. I propose that the
difficulties with the progressive of certain classes of state
predicates arise because either the explicit temporal
locatedness of the state asserted by the progressive, or the
limited duration of the state implicated by the progressive,
is anomalous. I also discuss several progressive-resistant
state predicates which I compare to the copula **be**, and suggest
that these predicates form a class which is incompatible with
certain types of aspectual modification including the
progressive, although I cannot offer any explanation for this
fact, beyond noting that no explanation in terms of the
temporal semantics of the progressive seems possible.

In Chapter 4 I turn to a very old observation, made recently by Diver (1963) and Mittwoch (1988), which is that the framed time of a progressive must be specific, or in Mittwoch's terms, "anchored". In the examples below the framed time is denoted by the adverbial (5a-c), identified as the time of utterance (5d) or understood from context (5e); the observation is that by one of these means the framed time must be identified.

(5)a. Mary was making coffee at three o'clock.

   b. Mary was making coffee when John arrived.

   c. Mary is making coffee.

   d. And then you heard the second shot?

       Yes. I was walking down the hall.

   e. Every time I went in there they were listening to the

       football on the radio.

Following from the traditional classification of the progressive as a definite verb form making reference to a definite or familiar time, in contrast to the perfect classed as an indefinite verb form making reference to an indefinite or novel time, I propose that the contrast between novel and familiar referents found with noun phrases such as a dog and the dog can be accounted for in a quantificational analysis of a and the, and that the same account can be extended to verb forms and event times; the progressive binds the event time with the, analysed as a quantifier.

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Finally in Chapter 5 I turn to the Imperfective Paradox, the
most enduring puzzle in the semantics of the progressive,
noted in one form by Aristotle and much discussed in the last
fifteen years. The problem rests on the different entailments
of progressives of telic and atelic predicates, as illustrated
below.

(6)a. John was walking $\rightarrow$ John walked.

   b. John will be walking $\rightarrow$ John will walk.

   c. John has been walking $\rightarrow$ John has walked.

   d. John was building a house $\nrightarrow$ John built a house.

   e. John will be building a house $\nrightarrow$ John will build a
      house.

   f. John has been building a house $\nrightarrow$ John has built a
      house.

One way of looking at the different entailments is to say that
a progressive sentence with an atelic predicate such as **walk**
entails the existence of a walking event, but a progressive
sentence with a telic predicate such as **build a house** does not
entail the existence of an event of building a house, although
it does entail the existence of some sort of event. The
difficulty is to provide a uniform semantics for the
progressive on which the entailments in (6a-c) are valid but
those in
(6d-f) are not.

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There are two main lines of response to the paradox. Dowty (1979) treats the progressive as a mixed modal/temporal operator; on his analysis, "John is building a house" entails that John finishes building a house in a particular kind of possible world distinct from the actual world, or in other words, under certain stated conditions, John would finish building a house. Thus Dowty analyses the progressive as a kind of counterfactual.

The second main approach to the paradox holds that the entailments in
(6d-f) are not valid because the progressive predicate on events in the antecedent is distinct from the simple tense predicate on events in the consequent; the first is a predicate true of (unbounded) processes and the second a predicate true of bounded events. I adopt the second view, that two predicates are involved, but unlike other writers I do not attribute the difference to verbal morphology, arguing that the uninflected predicates are actually ambiguous.

The progressive form, like the simple present tense, also has a futurative reading which I shall not address in this thesis, although I shall occasionally refer to it. Briefly, the progressive and the simple present tense may be true of future events, with the extra restriction that those events must be in some way planned, programmed or fixed to occur. This use

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of the two forms is illustrated below with Lakoff's examples
cited by Dowty (1979:155); see Dowty and references given
there for discussion of the futurative progressive.

(7) a.   Tomorrow, the Yankees will play the Red Sox.

    b.   Tomorrow, the Yankees play the Red Sox.

    c.   Tomorrow, the Yankees are playing the Red Sox.

    d.   Tomorrow, the Yankees will play well.

    e. ? Tomorrow, the Yankees play well.

    f. ? Tomorrow, the Yankees are playing well.

Assuming that a game between the Yankees and the Red Sox can
be planned or programmed, but that the Yankees playing well
cannot be planned (unless the game is rigged), we see that
although **will** occurs with either kind of event, the futurative
progressive and simple present tense are odd with unplanned
events. I do not consider the futurative progressive to have
the semantics proposed for the progressive in this thesis, and
will not discuss it here.

A second area related to the progressive which I will not
address in this thesis involves constructions with the so-
called aspectual verbs **start, begin, continue, keep, stop,**
finish and **cease. Start, begin** and **continue** and to a limited
degree **cease** appear with both infinitival and **ing** complements,
while **keep, stop** and **finish** take only **ing** complements.

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Milsark (1972) establishes that the **ing** complement to

aspectual verbs is syntactically distinct from clausal or

nominal **ing** phrases, and should be analysed as a participial

or verbal phrase. Assuming that these complements are indeed

verb phrases headed by **ing**, the obvious conclusion is that

they are progressive verb phrases, and thus sentences like

"Jones stopped listening after a while" are progressive

sentences. This position is assumed with little discussion by

Emonds (1976). I shall have occasion to remark (in Chapters 3

and 5) that certain restrictions on the progressive apply more

generally to a class of aspectual expressions, including at

least the progressive and the aspectual verbs, and I believe a

full understanding of the progressive requires an

understanding of Aspect in general as expressed by all these

forms. An analysis of the aspectual verbs, however, is beyond

the scope of the present work and left for future research.

For a full discussion of aspectual verbs see Freed (1979) and

also Perlmutter (1970).

I turn now to outlining the theoretical background used in

this thesis.

First, in the few remarks I shall make about the syntactic

structure of examples, I assume the Government-Binding (GB)

framework of Chomsky (1981,1986).

I shall also use the four-way classification of event types
(or predicate types) after the classification by Vendler
(1967). I say classification of events or predicates, as
there is some disagreement on what exactly is classified. My
view is this: the terms considered here apply to classes of
events as described by particular predicates, but do not apply
to events considered in themselves, independent of a
particular linguistic description. For example, a walk taken
by John is described as a bounded event if reported by the
sentence "John walked to the park" because the sentence
describes the event as culminating with John reaching the
park, but the same event can be reported by the sentence "John
walked for a while", in which no culmination or outcome is
part of the description and the event is described as
unbounded. In short, the aspectual properties underlying
these classifications are properties of events as presented
under a certain description; both the event and the predicate
must be considered. This gives rise to a certain shorthand
usage which is to be understood as follows: a bounded (or
telic) event is an event presented as inherently bounded by
the predicate in the example under discussion, and a telic
predicate is a predicate which presents an event as inherently
bounded.

The four classes are:

Accomplishment events are durative events having a natural goal, culmination or outcome which completes or finishes the event. Examples of accomplishment predicates are **build a house, run a mile, draw a circle, write a letter**, etc.

Achievement predicates are predicates of momentary events of transition. The transition may be the momentary onset of a certain state, as with the predicates **notice** ("become aware of"), **realise** ("come to know") or **die** ("become dead"). The transition may also be the momentary conclusion of a certain type of event, as with **arrive** (completion of a journey), **reach the summit** (completion of an ascent) or **find** (successful completion of a search). The chief characteristic of achievements is that they are essentially momentary or punctual.

Both accomplishment and achievement predicates are bounded or telic; accomplishment predicates, as above, describe an event as of the culminating kind, so that the event finishes with the natural culmination and does not continue beyond it, while achievement predicates describe transitional events which are themselves natural bounds. Mourelatos (1978), among others, establishes a single class of **events** consisting of both accomplishments and achievements, characterised by the common

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property of having an inherently bounded form; events in the three-way system are contrasted with **states** and **processes** (Vendler's states and activities respectively, as below).

Activities or **processes** are durative events with no inherent bounds; they include **walk, sing, roll, push a cart, run in circles, eat porridge,** etc.

States resemble activities in being not inherently bounded, having no natural goal or outcome, and are most commonly distinguished from activities in being homogeneous, while activities are heterogeneous. A state is homogeneous in that not only does a state holding at a given interval hold at every moment in that interval, each momentary portion of that state, considered in isolation as a momentary state, satisfies the state predicate. Examples of state predicates are **love, hate, be tall, shine, resemble,** etc. To illustrate homogeneity, if a light shines for an hour, even a single instant of that state is a momentary event of shining, satisfying the predicate **shine.** Activities are heterogeneous in that very brief or momentary portions which are parts of activities, if considered in isolation as events in themselves, do not satisfy the activity predicate. For example, **cha cha** is true of a dance consisting of a repeated pattern of steps, but any of the component steps considered as an event in itself is not a cha cha, merely a step.

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The aspectual classification of events has generated an extensive literature, and a variety of different approaches to classification methods, but the only points needed for the present discussion are summarised here.

Accomplishments are bounded/telic and durative.
Achievements are bounded/telic and punctual.
Processes are unbounded/atelic and essentially durative. (The essential durativeness of activities follows from their heterogeneous character.)
States are unbounded/atelic and either durative or punctual.

I add here a fifth class of predicates describing events which may be momentary and apparently bounded, but are not classed as telic by the usual tests; these are the activity predicates such as **touch, cough, sneeze, kick, punch, hit, slap,** etc on their semelfactive reading. The semelfactive reading is the reading on which, for example, "John sneezed" means that John gave a sneeze or sneezed once, contrasted with the activity reading which means that John sneezed repeatedly.

I turn now to issues concerning the form of representations. The truth conditions I shall use are formulated in a modified version of the NeoDavidsonian theory of event sentences, the chief point for my present purposes being that these representations contain restricted variables e ranging over

events. Here I shall briefly introduce Davidson's (1967)
theory of action sentences and comment on areas where I differ
from him.

For illustration I shall use the example in (8).

(8) Jones moved the crate to the shed with the forklift.

In a traditional predicate logic analysis (8) might be
represented as in (9), treating **move** as a four-place predicate
with John, the crate, the shed and the forklift as arguments.

(9) Move(j,c,s,f)

Davidson objected to this analysis for two main reasons: (i)
the representation in (9) does not yield certain valid
entailments of (8), and (ii) (8) should be interpreted as
making reference to an event, but this is not expressed by
(9).

First, (8) entails all of (10).

(10)a. Jones moved the crate to the shed.
    b. Jones moved the crate with the forklift.
    c. Jones moved the crate.

Following the strategy of analysis in (9), the sentences in
(10) must be represented as below.

(11)a. Move'(j,c,s)

   b. Move''(j,c,f)

   c. Move'''(j,c)

The important point is that in a predicate calculus each
predicate has fixed arity, and combination with too few or too
many arguments yields an ill-formed and uninterpretable
formula. In other words, the notion of "variable polyadicity"
is strictly oxymoronic. This is why at least four distinct
predicates lexicalised as **move** must be used in (9) and (11),
each of these predicates having its distinct array of
arguments. Note that (9), proposed as the representation of
(8), does not validly entail any of (11), presented as
representations of (10), although as we said above (8) entails
all of (10). Rather, the entailment of, for example, (11c) by
(9), shown in (12a), can have only the status of a lexical
meaning postulate directly comparable to the possible
postulate in (12b).

(12)a. Move(j,c,s,f) $\rightarrow$ Move'''(j,c)

   b. Murder(x,y) $\rightarrow$ Kill(x,y)

Davidson argued that the valid entailments of (10) by (8) are

clearly instances of (13), and should be so represented; that
is, (8) should be analysed as a series of conjuncts.

(13)   p & q & r

       entails all of

       p & q

       p & r

       q & r

       p

       q

       r

Davidson's second point was that sentences like (8) make
reference to events. The forms of language indicate that
events are individuals, as they can be referred to by definite
descriptions and pronouns and bound by quantification, as in
the examples below.

(14)a.   The meeting, the battle, the football match,..

    b.   The slamming of the door weakened the hinge.

    c.   John slammed the door and it startled me.

    d.   There were three major battles.

Assume then that events are individuals to which we make
reference, and thus are values of variables e. Davidson also
argued that many adverbials are in fact predicates on events,

as illustrated below. (It here refers to the event.)

(15)a.   Jones moved the crate, but it wasn't with a forklift.

   b.   Jones moved the crate; Mary says it was to the shed.

   c.   Jones moved the crate to the shed. It was on Monday.

   d.   They fought over the game. It was in the pub.

The two observations combined, that events are represented and
that adverbials are predicates on events, provide a new way of
representing (8), shown in (16a) and paraphrased in (16b).

(16)a.   Ee(move(j,c,e) & To(s,c) & With(f,e))

   b.   There was an event of Jones moving the crate, and it
        was to the shed and it was with the forklift.

On this formulation of (8), all of (10) are validly entailed
as required; the entailments are given below.

(17)a.   Jones moved the crate to the shed with the for.lift.
        Ee(move(j,c,e) & To(s,e) & With(f,e))
        entails all of

   b.   Jones moved the crate to the shed.
        Ee(move(j,c,e) & To(s,e))

   c.   Jones moved the crate with the forklift.
        Ee(move(j,c,e) & With(f,e))

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d.   Jones moved the crate.

     Ee(move(j,c,e))

It was immediately pointed out (Castaneda (1967), Parsons
(1980)) that the entailments in (18) are also valid, and
surely should receive the same account.

(18)a.   Jones moved the crate → The crate was moved.

   b.   I drove the car → I drove.

In the representations in (17) the adverbial predicates on
events were analysed by taking the preposition to express a
relation between an event and an entity involved in it, but
this cannot be extended straighforwardly to subjects and
objects. One response here is to use the prepositions of and
by found with the same argument types in other constructions,
as in (19), giving the entailments noted in (18) in the same
way as for adverbials, shown above.

(19)a.   There was a moving, and it was of the crate and it was
         by Jones.

   b.   Ee(move(e) & Of(c,e) & By(j,e))

A second response, commonly adopted in recent work and assumed
here, is to embrace the direction in which the analysis is
clearly moving and identify the relations borne to events

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```
With(f,e)

To(s,e)

Of(c,e)

By(j,e)
```

with Thematic Relations or Theta Roles, in modern work based
chiefly on the theories of Gruber (1965,1976) and Jackendoff
(1972):

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Instrument(f,e)

Goal(s,e)

Theme(c,e)

Agent(j,e)
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The wide-ranging and fascinating consequences of the
NeoDavidsonian position, and the many problems which have been
raised, are beyond the scope of this work. In any case, many
of the problems, centred on the treatment of adverbials and
identification of thematic roles, do not impinge on my
discussion of the relations between events and times. For
this reason, I will generally abbreviate the representations
of event sentences as illustrated in (22).

(22)a. Jones moved the crate to the shed.

b. EeEt(Past(t) & at(e,t) & Jones move the crate to the
shed(e))

The contracted representation in (22b) is to be taken as

shorthand for the explicit NeoDavidsonian representation (whatever the correct version turns out to be). I have introduced a variable t ranging over times; this move is supported by the same arguments Davidson used to argue for reference to events, as shown in (23).

(23)a. The time I saw him was after that.

   b. Every time we went there the beach was smaller.

   c. I saw John on Monday, but he didn't mention the problem then.

   d. I finished testing the samples from last night and locked up the equipment. It was nine o'clock.

Example (23d) illustrates another change from Davidson's view. Having introduced variables over times, I analyse temporal adverbials as predicates on times rather than as predicates on events, and also treat tense as a predicate on times; a similar view, that tense should be compared to adverbs rather than to operators, is proposed by Hornstein (1990:CH 5).

I have also abbreviated the representation of quantified noun phrases. Strictly, (24a) should be represented as (24b), but I will use (24c) for brevity.

(24)a. Jones killed a man.

b.   EeEtEx(Past(t) & at(e,t) & kill(e) & man(x) &

Agent(j,e) & Theme(x,e))

c.   EeEt(Past(t) & at(e,t) & Jones kill a man(e))

Finally, the relation at is to be understood as follows: an event e is at a time t iff e exactly occupies t; e begins at the lower bound of t, continues throughout t and ends at the upper bound of t. In other words, where e is at t, t is the event time or time of e.

Much of the discussion of the semantics of the progressive which I will draw on and respond to is in the framework dubbed interval semantics, which may be described as a development of tense logical frameworks. In a tense logic, the truth condition of a tensed sentence is given in terms of the truth of a corresponding sentence at a time determined by the interpretation of tense. This is illustrated below, where t* is an indexical element most commonly assigned the time of utterance as value.

(25)a.   Past(α) is true at t* iff there is a time t such that

t < t* and α is true at t.

b.   Future(α) is true at t* iff there is a time t such

that t* < t and α is true at t.

Analysing particular examples, α may be represented as either

the corresponding present tense sentence or the corresponding
tenseless sentence, as in (26).

(26)a.   "John walked" is true at t* iff there is a time t such
         that t < t* and "John walks" is true at t.

         or

     b.   "John walked" is true at t* iff there is a time t
         such that t* < t and "John walk" is true at t.

Both versions require some further comment. If the present
tense is used, it is used not with the habitual reading it
usually has in the object language, but as an event report.
If the tenseless form is used, it also cannot be interpreted
in the same way as the object language form, because in
English tenseless sentences are open sentences and so do not
have truth conditions. So both the metalanguage sentences
"John walks" and "John walk" have interpretations which are
not drawn from the object language. Discussion in the
literature shows clearly that these sentences are to be
interpreted as follows: "John walks" and "John walk" are true
at a time t iff there is an event of John's walking at t, and
at is interpreted as stated above. In other words, an event
sentence is true at the event time.

This makes it clear that times of evaluation of event
sentences cannot be restricted to instants, as most events are

durative. Bennett and Partee (1978) pointed out this problem
for sentences like "John builds a house". There is a unique
interval exactly occupied by the whole house-building event,
which begins at the lower bound of the interval and finishes
at the upper bound, and no smaller part of the whole event is
itself an event in which John builds a house. Bennett and
Partee proposed that the evaluation times of sentences should
be intervals rather than instants. This view is now widely
held, assuming also that intervals are sets of instants.
There are events considered to have no duration, such as
winning a race, and accordingly a sentence such as "Mary wins
the race" is judged true at an instant. For these cases the
interval at which the sentence is true is a singleton set,
having a single instant as member.

In my discussion of proposals in the interval semantics
framework I will use representations of the kind used by the
author for clarity of comparison, although it should be clear
that relevant parts of the two forms of representation are
easily inter-translateable.

Finally, where I refer to tense logical truth conditions I
mean any truth condition of the general form "S is true at t
iff S′ is true at t′"; the truth condition of a sentence S at
t is given in terms of the truth of a sentence S′ at a time
t′.

CHAPTER 2

THE PROGRESSIVE AS A TEMPORAL FRAME

The Traditional View

The progressive is described as presenting a temporal frame by Jespersen (1932:178-80). Considering the example "He was hunting", Jespersen writes:

> The hunting is felt to be a kind of frame round something else; it is represented as lasting some time before and possibly (or probably) also some time after something else, which may or may not be expressly indicated, but which is always in the mind of the speaker.

This view has been adopted by many later writers, including Allen (1982:212), Huddleston (1984:156), Leech (1971:17), Lyons (1977:709), and Palmer (1987:54-55). The framed "something else" is expressly indicated by temporal adverbials in the examples below.

(1)a.   Mary was making coffee when John arrived.

    b.   Mary was making coffee at three o'clock.

In these examples the time of John's arrival and three o'clock

fall within the duration of Mary's making coffee. With the present progressive, the interpretation that a reported event is in progress at the time of utterance follows naturally if the time of utterance is the framed time, and thus (2) reports an event of Mary's reading the Globe which is in progress at the time of utterance, and probably began before that time and will continue a little after that time.

(2)   Mary is reading the Globe.

In all of these examples, the framed time is very brief or momentary: three o'clock denotes a moment, the time of an arrival is brief or momentary, and on common assumptions which I adopt here, the time of utterance is a moment.

The framing effect is also found with temporal adverbials denoting intervals, as in (3).

(3)a.   John played the piano from ten to eleven.
   b.   John was playing the piano from ten to eleven.

Leech (1969:150) observes that in (3a) the hour from ten to eleven is taken to be the duration of the whole performance, while (3b) tells us nothing about when John began and finished playing, suggesting that the whole performance may have been longer than the hour mentioned. Similarly with (4), where in

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(4a) but not in (4b), we understand that the watching occupied

exactly the time denoted by the adverbial; (4a) rather than

(4b) is a response to "When did you watch the door?".

(4)a.   I watched the door the whole time the truck was in the

         yard.

   b.   I was watching the door the whole time the truck was

         in the yard.

Jespersen's view that the progressive presents an event as a

temporal frame around a contained time served as a starting

point for formal statements of the semantics of the

progressive, chiefly in the influential analysis of Bennett

and Partee (1978:13), which gives the following truth

condition.

   [PROG α] is true at t iff there is an interval I such

   that t is a proper subset of I, t is not a final

   subinterval of I, and α is true at I. [1]

To illustrate this:

_____

[1]Bennett and Partee also state that t must be a moment
rather than an interval, but here I assume that t, the framed
time, may be either. This question is discussed further in
Chapter 3.

John be walking is true at t iff there is an interval I
such that t is a proper subset of I, t is not a final
subinterval of I, and **John walk** is true at I.

This analysis is a modification of a proposal in Montague
(1974:125), and developments on it appear in Bennett
(1977,1981) and Dowty (1977,1979). Subsequent discussion has
concentrated on the problem Dowty named the Imperfective
Paradox, introduced in Chapter 1. The contrasting entailments
for telic and atelic predicates in the progressive noted there
are not accounted for by truth conditions of this form.

But setting aside the Paradox (see Chapter 5), which arises
only for telic predicates, it is not clear that the formal
statement above is correct for atelic predicates either. If
we apply the analysis to (3b), and identify the value of t as
the hour from ten to eleven, the truth condition is roughly as
follows:

(5)   If t = ‖**from ten to eleven**‖, then **John be**
        playing the piano is true at t iff there is an
        interval I such that t is a proper subset of I,
        t is not a final subinterval of I, and **John**
        play the piano is true at I.

As it stands, the requirement that t not be a final

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subinterval of I has the consequence that (3b) is true only if John continued playing past eleven o'clock. The clause stating that t is nonfinal in I has been questioned by Dowty (1979) among others, in light of examples such as "John was sleeping when the clock woke him"; the definition in (5) applied to this sentence gives the impossible result that some time was both a time of John's sleeping and of his being woken. But even if we remove the relevant clause, the definition applied to (3b) still requires that "John was playing the piano from ten to eleven" is true only if John began playing before ten or finished playing after eleven, as at least one of these disjuncts must hold to satisfy the clause stating that t is a proper subset of I; that is, that the hour from ten to eleven is a proper subset of the duration of John's piano playing.

Now it seems that the temporal semantics of the progressive illustrated above does reduce to exactly this claim, that the time spoken of is not the whole duration of the event. But as stated here, the earlier beginning or later ending of the event is entailed. This, I claim, is too strong, and is certainly stronger than Leech's comments on (3):

In "I played the piano from ten to eleven o'clock", we take it that the speaker began his performance at ten and finished it at eleven, but in "I was playing the piano

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from ten to eleven o'clock" the actual times at which the

pianist began and ended are unknown."

Explicitly, the contrast claimed here is that the simple form

asserts that the stated interval was the duration of the

event, while the progressive is merely noncommittal. Support

for Leech's view comes from the dialogue below: if the truth

condition in (5) is correct Speaker B must be held to

contradict himself, but this is not the case.

(6)A. Where were you from ten to eleven on the night of the

   murder?

 B. I was playing the piano in here. I know it was ten

   o'clock when I started because the ten o'clock news

   came on just then, and I stopped when my wife called

   me when the news ended at eleven.

 A. So you played without leaving the piano from ten to

   eleven?

 B. That's right.

An Alternative Analysis

It is not enough to say that the progressive is merely

noncommittal as to the actual event duration, as we could then

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understand the duration of the event to be less than the
stated hour, but such an interpretation is not available; we
understand "John was playing the piano from ten to eleven" to
assert that the event occupied the stated hour or possibly
more, but not less. In other words, I claim that the
progressive locates the event <u>at least</u> at the stated time.

This analysis is to be understood according to the comparisons
outlined below. Consider first the examples in (7), with the
underlined phrases in (7a-c) paraphrased as in (7a'-c').

(7)a.   I have <u>at least ten</u> books.   p

   b.   I have <u>ten</u> books.   q

   c.   I have <u>more than ten</u> books.   r

   a'   ten or more than ten

   b'   ten

   c'   more than ten

Assigning the sentences in (7a-c) to the variables as
indicated above, and noting that if I have more than ten books
the books I have include groups of ten books which I have, the
following entailments hold.

(8)a. p iff q v r

   b. If r then q

   c. If p then q

d. If q then p

e. p iff q

The result in (8e), that (7a) and (7b) are logically
equivalent, appears to be correct: both sentences are true if
I have exactly ten books or if I have more than ten books, and
both are false if I have fewer than ten books. The content of
modification by **at least** cannot be captured by a difference in
entailments. I assume then that the difference between (7a)
and (7b) is due to implicature according to Grice's Maxim of
Strength, which arises by contrast between the two forms.
Taking (7a,b) to have the basic structure suggested above and
repeated here

(7)a. I have at least ten books   q v r

   b. I have ten books   q

the assertion of (7a) **q v r** implicates **r** ("more than ten") by
contrast with the barer assertion of **q** which is not chosen;
thus (7a) when considered in contrast to (7b) implicates that
I have more than ten books but does not entail it. The
assertion of **q**, in contrast to **q v r**, implicates ¬**r** because
the form **q v r** is not chosen, and thus (7b) considered in
contrast to (7a) implicates that I have exactly ten books, but
again does not entail it.

One might wish to take an alternative approach to the interpretation of unmodified expressions such as **ten books**, and say that they are three-ways ambiguous, with the appropriate reading disambiguated by context. On this approach, the underlined numeral in the examples below would be paraphrased as indicated.

(9)a. Passengers may take <u>two</u> pieces of hand luggage into the
       cabin.

       two (and not more than two)

   b. Take <u>two</u> tablets before breakfast.

       two (and not more than two and not fewer than two)

   c. Students must complete <u>two</u> practical courses before
       graduating.

       two (and not fewer than two)

The issue is whether or not the bracketed information should be included in the semantics of the indicated numeral, and therefore appear in the entailments of the sentence. My own view here is that the truth conditions for the sentences do not contain the bracketed information, which is given by pragmatic inference. So (9a), for example, entails only that passengers may board with two pieces of luggage, and from what we know about the purpose of luggage restrictions we infer that we cannot board with more than two pieces, but we can board with one piece or with no luggage; this extra

information is not entailed by (9a). Similar considerations

appealing to our knowledge of drug doses and course

requirements apply in (9b,c). In short, where "I have ten

books" is understood as "I have exactly ten books", this

arises by implicature, not because ten books is in general

ambiguous and here means "ten books and not more than ten and

not fewer than ten".

Contrastive implicature also arises in (10).

(10)   John has ten books and Mary has exactly ten books.

Here we see that where ten and exactly ten are used as if

contrastively, ten books implicates "ten or more"; the

implicature runs as follows.

(11)a.   John has ten books.

         ten

    b.   John has exactly ten books.

         ten and not more than ten and not fewer that ten

Recalling that (11a) is equivalent to "John has at least ten

books", analysed above as "John has ten books or more than ten

books", we see that the effect of exactly is to deny one of

the entailments of unmodified (11a). So to choose (11a) in

contrast to (11b) is to refrain from denying "John has more

than ten books", and thus to implicate it.

I turn now to the comparison with the progressive. I said above that the progressive means "at least at the given time". This can be expressed by modifying the original definition, substituting the relation "subset" for "proper subset" as in (12), (omitting also the requirement that t be nonfinal in I).

(12)   [PROG α] is true at t iff there exists an interval I
        such that t is a subset of I and α is true at t.

For the illustration used above, this definition reads, roughly, "From ten to eleven is included in and not greater than the time I played the piano", or "I played the piano at least from ten to eleven". I shall adopt the equivalent formulation in (13), because it shows more clearly the disjunction from which I claim the temporal frame implicature arises. [2]

(13)   [PROG α] is true at t iff α is true at t or
        there is a time t' such that t is a proper subset of t'
        and α is true at t'

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[2] I remind the reader that the present purpose is to explore only the temporal properties of the progressive underlying the temporal frame reading, and that only atelic predicates are at issue here. Telic predicates and the Imperfecitve Paradox are discussed in Chapter 5.

In this definition, our example repeated below in (14a) has
the reading paraphrased in (14b).

(14)a.   John was playing the piano from ten to eleven.

     b.   John played the piano from ten to eleven or

          John played the piano for some time greater than

          and including the hour from ten to eleven.   p

Treating the simple tense as the basic unmodified form
parallel to **ten books** above, let q and r be as in (15), where
r is the second disjunct of p.

(15)a.   John played the piano from ten to eleven.   q

     b.   John played the piano for some time greater than

          and including the hour from ten to eleven.   r

Now if John played from nine until twelve, it is entailed that
he also played from ten to eleven, in that the larger event
includes the smaller event as part. Assigning the values as
indicated, the entailments below hold.

(16)a.   p iff q v r

     b.   If r then q

     c.   If p then q

     d.   If q then p

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e. p iff q

The result in (16e), that (14a) and (15a) are logically
equivalent, is also pointed out by Vlach (1981:278). The
temporal frame reading arises by the same implicature
discussed above. The progressive has a truth condition of the
form q v r, and contrasts with the nonprogressive which has q
as its truth condition. So the progressive by contrast with
the nonprogressive implicates r by failing to assert the barer
form q. Conversely, the simple tense sentence, asserting q in
contrast to q v r, implicates ¬r. Repeating the relevant
examples for convenience, the key relations are as follows:

(14a) John was playing the piano from ten to eleven.   p
(15a) John played the piano from ten to eleven.   q
(15b) John played the piano for some time greater
       than and including the hour from ten to eleven.   r

       p entails q

       q entails p

       p implicates r

       q implicates ¬r

So far I have discussed only an example where t, the framed
time, is an interval, and as such a plausible candidate for

the whole duration of an event which is durative, such as
piano playing. But the temporal frame reading is sharpest
with the so-called point adverbials such as "at three o'clock"
or "when John arrived", which identify the time t as a moment,
and with present progressives where the framed time is the
time of utterance, assumed to be a moment. How does the
revised definition fare with these examples?

(17)a. Mary was working when John arrived.

   b. Mary was working at three o'clock.

   c. Mary is reading the Globe.

If t = ‖when John arrived‖, then **Mary be working** is true
at t iff **Mary work** is true at t, or there is a time t'
such that t is a proper subset of t' and **Mary work** is
true at t'.

If t =‖at three o'clock‖, then **Mary be working** is true at
t iff **Mary work** is true at t or there is a time t' such
that t is a proper subset of t' and **Mary work** is true at
t'.

If t = t*, then **Mary be reading the Globe** is true at t
iff **Mary read the Globe** is true at t, or there is a time
t' such that t is a proper subset of t' and **Mary read the
Globe** is true at t'.

Each of these examples presents a choice between a solely momentary working event and a momentary working event viewed as part of a longer event. Reasonably, the latter option is always chosen because workings are characteristically durative, and a moment of Mary's working can only be understood in this way.[3] The temporal frame reading then is always understood with these examples, but this is a matter of contingent necessity and not an entailment of the truth condition for the progressive. I note in passing that the durativeness of events of working, reading and the like may be expressed as analytic entailments of the predicates work, read, etc, but this is a different matter.

It is also worth pointing out that the present progressive may be used to report a momentary event understood as occurring at the moment of utterance. I offer the following illustration. Imagine that we are watching a thriller on videotape, and the plot hinges on when John's fingerprints came to be on the desktop. We rewind to an earlier scene in which John strolls across the room, momentarily touching the desktop as he passes. As the scene unfolds, I say "Here it comes..Look! He's touching it! There! He touched it!" and my utterance of

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[3]The view that any moment during an interval of Mary's working is itself a moment of Mary's working is disputed by Taylor (1977). His analysis is discussed in Chapter 3.

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"He's touching it" occurs around the moment in which John touches the desktop. On the usual convention that the time of utterance is taken as a moment, even though utterances in actuality take time to make, here we can say that the punctual event of John's touching the desktop occurs precisely at t*.

I have used the tense logical type of definitions till now to make the comparisons clearer, but here I substitute an expanded version of the Davidsonian representations introduced in Chapter 1. For illustration, the truth condition for "Mary was working at three o'clock" is represented as below.

[Qt:Past(t) & t = ‖at three o'clock‖] Ee[[at(e,t)] ∨ [Et'[t is a proper subset of t' & at (e,t')]] & work(e) & Agent(m,e)]

For the present I bind the time variable with a quantifier variable. The value of this variable will be explored in Chapter 4, and the treatment of temporal adverbials will be discussed and revised in Chapter 4.

Restrictions on the Framed Time

Now the temporal frame reading on the view presented here

arises from the implicature of the disjunct "t is a proper subset of t'", which as it stands allows t to fall anywhere within t'. I have already noted the disputed stipulation that t be nonfinal in t', and said that I accept Dowty's reasons for rejecting it. It has also been claimed where point adverbials are concerned that t must be noninitial in t', chiefly by Vlach (1981:273-4), who defines statives as follows:

A sentence S is stative iff the truth of (Past S) **when I arrived** requires that S was true for some period leading up to the time of my arrival.

Vlach adds that this is also true of other point adverbials, and that the criterion identifies progressive sentences as statives, from which it follows that where a progressive sentence contains a point adverbial identifying t as a moment, there must be a t' such that t is a proper subset of t', t is not initial in t', and the event occupies t'. The claim rests on the intuition that in examples like (18), it is entailed that the situation described by the main clause in part precedes the time of three o'clock.

(18)a. Mary was working at three o'clock.

   b. The light was green at three o'clock.

I note in passing that Vlach's basic claim about statives may be false, considering examples like (19).

(19)   The time was three o'clock when John arrived.

If Vlach is right, either "The time was three o'clock" is not stative, or (19) is true only if it had been three o'clock for some period leading up to John's arrival. The first alternative is implausible and the second clearly false. I point out also that if, as is widely accepted, the temporal frame reading with the present progressive and with point adverbials are to receive the same account, assuming that the present progressive "frames" the moment of utterance, my example above "He's touching it" is a counterexample to Vlach's claim, if understood as a general claim that the time of an event described by a progressive must _properly_ contain the given time point.

Nevertheless, it seems (18a,b) must be interpreted only as Vlach claims; that is, (18) must mean "The light was already green at three o'clock". It is impossible to construct parallel examples to "John was sleeping when the clock woke him" forcing the onset interpretation for t = three o'clock. "John and Mary were dancing when the band struck up" does not have the onset reading. But there are other indications that Vlach's requirement is too strong. It seems to me that if I

say to John "You had better be sitting at that desk at nine",

I must accept that he complies if he falls into his chair

right on nine o'clock, and similarly, if the light was green

from three to four exactly, it seems that (18b) is still true.

And again, "Was the light on at three o'clock?" may be

answered "Yes, I turned it on at three" without contradiction.

Finally, a traditional radio commentary on a horse race in New

Zealand always begins "Theeey're RACing now!" with "They're"

said slowly as the gatekeeper readies the gate, and "racing

now" said to coincide exactly with the beginning of the race

as the gate flies up. As accurately as the commentator can

perform it, the utterance is made at the very start, and thus

the time t* at which "They're racing now" is evaluated is the

very start of the race. In short, although the progressive

cannot be used to assert that t is the onset of the event, nor

does it entail that t is not the onset.

Aristotle (see discussion in Taylor 1977:205) also had the

intuition that the time t must not be an onset of the

described event, as shown by his classification of energeia

verbs (in Vendler's terms, activities) as those for which "x

is V-ing" entails "x has V-ed". There are two claims here:

one is that energeia verbs contrast with kinesis verbs

(telics) in that energeia verbs as predicates of events are

also true of their subparts, but kinesis verbs are not, and

the other is that the progressive places t within the event,

preceded by a subpart; from the vantage point of t we can look back at the preceding subevent in virtue of which "x has V-ed" is true.

Taylor discusses this point and concludes that the proposed entailment is in fact not valid, but seems plausible because of the activity predicates he terms "heterogeneous", such as **chuckle** or **walk**. Chuckling and walking are made up of coordinated component actions, walking, for example, being a complex pattern of shifting the weight from one foot to the other while moving the body forward in an upright position. These component actions performed in isolation are not themselves instances of walking, and we must see these motions combined in the appropriate pattern to identify an action as walking, and not, say, skipping. Taylor writes (op.cit:214):

> ..no speaker will be in a position **warrantably to assert** that x is chuckling until, some minimal period period of chuckling having passed and been recognized, it is true that x has chuckled; so although..it must be denied that there is a genuine entailment from "x is V-ing" to "x has V-ed" ...at least it is clear why it should have seemed plausible for theorists to have held that there is.

I concur with this view, and continue to assume that the proposed semantics for the progressive requires no additional

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restriction on the occurrence of t within the duration of the event, in those cases where t is clearly not the whole duration.

When-Clauses and the Sequential Reading

On the present analysis the simultaneous or framing readings of (17) are claimed to be of the same kind,following from the semantics of the progressive, but I turn aside here to discuss an alternative approach which has been suggested for those examples which contain temporal when-clauses. Consider the contrast in (20).

(20)a.   Mary was making coffee when John arrived.

   b.   Mary made coffee when John arrived.

So far I have addressed only the fact that in (20a) John's arrival occurs during the course of Mary's making coffee, and have said nothing about the more interesting fact that in (20b) John's arrival is understood to precede Mary's making coffee.

Several writers have responded to this by ascribing the difference not to the verb forms, but to an ambiguity in when.

Palmer (1969:112,145) gives **when** the two readings "at the time at which" and "immediately after that"; Smith (1983:486) also describes **when** as ambiguous, and Woisetschlaeger (1977:55) gives **when** only the successive reading. Partee (1984:261) also treats **when** in narrative as setting a new reference time "just after" a given event. My analysis above of the examples in (17) treats "when John arrived" the same way as "at three o'clock", attributing to **when** the reading "at the time at which". The question is whether the contrast in (20) rests only on the different verb forms, or also on a sequential reading for **when** in (20b). If **when** is ambiguous, we must account for the choice of one form or the other in different sentences.

I will argue that **when** always means "at the time at which", and that the different temporal relations we understand to hold between events taken as wholes arises mainly because of the variable properties ascribed to events by their descriptions.

Sequential <u>when</u> requires Brief Bounded Events

Typical examples of **when**-clauses with the sequential reading are shown below.

(21)a.   When I saw him he ran away.

   b.   When John arrived Mary made the coffee.

   c.   When John sneezed everyone stared at him.

   d.   When John came into the room Bill turned the music
        down.

The first point to note is that where "A when B" is understood
to mean A follows B, the complement to when describes a brief
bounded event: in the examples, by predicates classed as
semelfactives (21c) or in Vendler's system, achievements or
accomplishments ((21a,b,d) where see here = "catch sight of"),
both of these being telic. Although semelfactive verbs such
as laugh, sneeze, shout, etc. are not classed as telic by the
usual tests, I suggest that in their semelfactive readings
they resemble telic verbs, in that they are true of events
which have a typical bound: on the semelfactive reading cough
means more or less "give a cough", sneeze means more or less
"give a sneeze", where a cough or a sneeze is a specific
bounded action, and the activity reading of such verbs is true
of repetitions of this bounded action. So for the present I
include these verbs on the "sneeze/cough once" reading as true
of bounded events.

If the when-clause describes an event other than brief bounded

events, the events are understood to at least partly overlap.

(22)a.   When I walked towards him he ran away.

   b.   When we held the meeting Mary made the coffee.

   c.   When John sneezed and sneezed everyone stared at him.

   d.   When John read the paper Bill turned the music down. [4]

The overlapping or simultaneous reading also occurs where the
when-clause describes a state of affairs.

(23)a.   When John was eleven he ran away.

   b.   When she felt like it Mary made the coffee.

   c.   When John wore those lime green glasses everyone
        stared at him.

   d.   When it was late John turned the music down.

So the sequential reading is apparently dependent on the when-
clause describing a brief bounded event. But this is not
sufficient to give rise to the sequential reading, as in (24).

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   [4]Jim Higginbotham (p.c.) suggests that the complement to
when need not describe a bounded event for the sequential
reading to arise; e.g. stammer, unlike cough, sneeze, etc. is
not semelfactive, but a sequential reading is available in
(i).

(i) When John stammered Mary became embarrassed.

My judgment on this is not clearcut. I find the overlap
reading for (i) to be more salient, and certainly more so than
in "When John sneezed Mary became embarrassed."

(24)a.   When John sneezed he made a noise like a hyena.

   b.   When John came into the room he left his bag in the
        hall.

   c.   When John hit Bill he grazed his knuckles.

In (24a) we have a redescription of the same event, in (24c)
the main clause describes an event which is temporally
contained in and perhaps caused by the **when**-clause event, and
in (24b) the events are simultaneous or perhaps reversed in
order, depending on whether **leave** describes only putting the
bag in the hall, or includes also not subsequently removing
it.

In the right context a sequential reading is possible for some
of these cases: (24a) describes an instance of John's amusing
reflexive tic; he sneezes, and then he brays like a hyena. In
(24c), John hit Bill and then he rubbed his knuckles on the
brick wall to express his frustration (see the film **Sid and
Nancy** for illustration). This kind of context manipulation
suggests, I think correctly, that the exact temporal
interpretation of these sentences is partly pragmatic. The
variation in the exact interpretation of **when**-clauses as
temporal locations is just an instance of the general
imprecision with which times may be predicated of events; that
is, "A when B" means "A at the time at which B" with the
proviso that this statement of identity of times can be as

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loose as "A on the occasion of B", which is perhaps a better account of the temporal relationship between events in (24).

Assuming that **when** simply means "at the time at which", we can compare **when**-clauses to temporal adverbials which name the predicated time, as in (25), and see that they are indeed similar.

(25)a.   John ran away when he was eleven.

   b.   John ran away in 1977.

   c.   When John wore those lime green glasses people stared at him.

   d.   People stared at John the whole afternoon.

   e.   When John arrived Mary made coffee.

   f.   At three o'clock Mary made coffee.

   g.   I didn't follow the whole thing, but I listened carefully when Berg spoke.

   h.   I didn't follow the whole thing, but I listened carefully from two to four.

In (25a/b) the event described by the main clause falls somewhere within the interval denoted by the adverbial. In (25c/d,g/h) the event described by the main clause occupies the whole interval, and in (25e/f) the point of time denoted by the adverbial is understood as the onset of the event described by the main clause. This reading, in which a time-

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point is predicated of a durative event and understood as the
event onset, underlies the sequential reading of **when**-clauses.
Explicitly, the moment of John's arrival is understood as the
onset of Mary's making coffee, and so the main part of the
coffee making follows John's arrival. Strictly speaking the
reading is of very slight temporal overlap, which is why
Palmer's definition of sequential **when** must specify
"_immediately_ after that".

Punctual Events

As above, the sequential reading arises only where the
complement to **when** contains a predicate of brief bounded
events. It is commonly noted that the past tense of a telic
predicate may present the event as having no temporal
structure, as if it occurred at a moment, as illustrated in
(26).

(26)a. Just as Mary read the note the meeting ended.

   b. As soon as Mary read the note the doorbell rang.

   c. The moment Mary read the note the kids arrived.

In all of these "Mary read the note" appears as complement to
an expression which selects a complement describing a

momentary event. The moment denoted by these adverbials, determined by the note-reading event, is not the moment of the event's completion as can be shown by the oddness of the examples in (27).

(27)a. # Just as Mary read the paper the meeting ended.

    b. # As soon as Mary read the paper the doorbell rang.

    c. # The moment Mary read the paper the kids arrived.

    d. ? When Mary read the paper the meeting ended.

    e. ? When Mary read the paper the doorbell rang.

    f. ? When Mary read the paper the kids arrived.

The paper-reading event may have a precise completion time but is a poor candidate for being presented as if it occurred at a moment. Although my intuitions are not clear on (27d-f), (27d) is odd but has either an overlap or a sequential reading, while (27e,f) have overlapping-events readings in which the doorbell rang repeatedly and the kids arrived separately during the reading event.

I note in passing that the plausibility of presenting events as punctual is partly a matter of "grain size" determined by the context: the examples in (28) are fine, because the scale of times is set high, and the events described here are the briefest in the scale.

    .

(28)a.   Just as John got out of real estate the market

slumped.

   b.   As soon as John got out of real estate the market

slumped.

   c.   The moment John got out of real estate the market

slumped.

A mixing of scales produces absurdity, as in "The moment the
market slumped John arrived for the meeting."

This question of grain size sharpens the notion of punctuality
of events. Our formal apparatus for investigating the
semantics of time, mapping times to the real numbers, may lead
us conceptually to associate moments with very small measures
such as seconds or microseconds, and this association is
perhaps strengthened by the fact that the English word **moment**
is true of brief intervals, as in "For a moment there I was
worried", "They glared at each other for a seemingly endless
moment, then turned away". But **moment** as a theoretical term
is true of times which are indivisible and have no duration,
not so much as a microsecond. Obviously an event which is
brief is easier to visualise as durationless, but the two are
distinct, the main difference being that truly durationless
events don't exist. Clearly there is a problem here for
truth-conditional semantics, in that the presentation of an
event as durationless is never true in fact and therefore

cannot be stated as an entailment of any sentence which has this reading. I have no solution to the problem of representing such characterisations, and leave it for future research, suggesting only that the correct account may lie with the distinction between "backgrounded" and "highlighted" information: the duration of an event described as durationless is not denied, but is set aside in such a way that it may not be appealed to in computing the truth condition of the whole sentence. This seems compatible with the examples below.

(29)a. Mary cooked dinner at eight (?and it was ready at half past).

   b. Mary cooked dinner at eight (# and started at quarter to).

   c. Mary cooked dinner at eight (? and it took her half an hour).

   d. We held the meeting at three (? and finished at five).

   e. We held the meeting when John arrived (? and finished at five).

To sum up so far, the sequential reading of "A when B" arises just where "when B" can be understood as denoting a moment, and this depends on B presenting the event it describes as punctual. The temporal adverbial is then understood to

predicate the onset time of the event described in the main clause, just as with point adverbials like "at three o'clock". Where pragmatic factors lead us to interpret A as a redescription of event B, or a description of part of a more vaguely bounded event or occasion of type B, as in (24), pragmatic considerations also determine the exact temporal relation between B and A. But in all of these, **when** simply means "at the time at which".

Implications of Causality

Nothing I have said accounts for a further property noted with the sequential reading, illustrated below.

(30)a.   When he swore at me I hit him.

b.   When I hit him he swore at me.

c.   As he swore at me I hit him.

d.   As I hit him he swore at me.

Now (30c,d) express only simultaneity and are roughly equivalent, but (30a,b) are strongly sequential, where "A when B" conveys "B before A"; moreover, we tend to understand the A action as being a response to, or caused by, the B action. In other words, (30a) suggests that I hit him because he swore at

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me.

At first sight this contrast suggests that **when**, unlike **as**, is
not here a purely temporal connective, and either:

(i) **when** expresses sequence from which the causal link is
inferred, or

(ii) **when** expresses causality from which the sequence is
inferred. [9]

First, it can be shown that **as** must express the exact identity
of two times (i.e."at exactly the time at which"), unlike **when**
which is subject to quite loose interpretation, as in (22-24)
above.

(31)a.   John ran away when he was eleven.

    b. # John ran away as he was eleven.

    c.   When John read the paper Bill turned the music down.

    d. # As John read the paper Bill turned the music down.

    e.   When we held the meeting Mary made the coffee.

    f. # As we held the meeting Mary made the coffee.

---

[9] It will be clear that I use the term "causality" very
loosely here, as a cover term for "A when B" meaning "A in
response to B", "A because B", etc. Causality in the strict
sense is involved in some of the relevant cases but not in
all.

If I am correct in claiming that the sequential reading of "A when B" arises just where event B is presented as punctual and A is not, it is clear why as cannot give rise to the sequential reading, which depends on relating unlike times: this accounts for the simultaneous readings of (30c,d). The difference between as and **when** in (30) need not lead us to conclude that **when** is not purely temporal. This leaves us the choice between (i) and (ii) above: with sequential **when**-clauses, (i) causality is inferred from sequence or (ii) sequence is inferred from causality.

The evidence below favours (i).

(32)a.   I turned the corner when the bell rang.

   b.   The bell rang when I turned the corner.

   c.   I walked to the gate when the fire engine passed our street.

   d.   The fire engine passed our street when I walked to the gate.

In all of these examples the sequential reading is available, but only in (32a,c) does "A when B" suggest "A in response to B"; I was waiting for the bell to signal me to act, and I walked to the gate to see the fire engine. In (32b,d) the inference "A in response to B" is implausible but the sequential reading is still available. Of course here we can

set up special circumstances for (32b,d) so that the causal

reading is plausible; For (32b), say, my turning the corner

was a prearranged signal for someone to ring the bell. I

consider the inference of causal link here to be pragmatic,

occurring perhaps because we have a strong tendency to

structure the world in terms of cause and effect.

Note also the examples in (33).

(33)a. Bill crossed the street when I did.

    b. Bill crossed the street when I crossed the street.

    c. When I crossed the street, Bill crossed the street.

Assuming that the VP anaphor in (33a) takes its content from

the main clause antecedent, and assuming also that the

univocality requirement found with such anaphora covers the

distinction "presented as punctual vs. presented as

nonpunctual", the mismatch of times which I claim underlies

sequential "A when B" is impossible, and only the simultaneous

reading arises. (I hope it is clear that the "ambiguous when"

view cannot account for this.) The "A in response to B"

reading is also unavailable for (33a). (33b) strikes me as

allowing all of the following: (i) Bill and I crossed the

street at the same time, (ii) Bill crossed the street

immediately after I crossed the street but not because I

crossed the street, (iii) Bill crossed the street immediately

after I crossed the street and because I crossed the street.
The preposed adverbial in (33c), however, strengthens the
sequential reading, perhaps by evoking the convention
according to which events described by coordinated clauses are
understood to occur in the order of narration. And in (33c)
the response reading is also strengthened indicating that Bill
crossed the street because I crossed the street.
Given that the causal link reading depends on the sequential
reading, but not vice versa, the causal link is inferred from
sequence.

Summary: <u>When</u>-Clauses

I have argued that, contra Palmer and others, temporal **when**
uniformly means "at the time at which" and not "immediately
after that". I have shown that the sequential reading of
when-clauses arises in only a narrow range of cases, in which
I claim clause B in "A when B" presents event B as punctual,
from which it follows that a time point is predicated as the
time of occurrence of event A. In these cases, point
adverbials such as "when John arrived" and "at three o'clock"
are interpreted alike as the onset time of event A, where
event A is presented as nonpunctual. The requirement that
events A and B be presented as of different types (punctual

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vs. nonpunctual) explains the lack of sequential readings with

as or with anaphoric do; as selects times of the same type as

relata, and do takes its content from its antecedent,

including temporal type. The inference of causal link

commonly found with "A when B" depends on the sequential

reading, as well as on the commonsense plausibility of the

causal link, but the sequential reading is independent of the

causality inference, indicating that the causal link is

inferred from sequence; it may strengthen, but does not give

rise to, the sequential reading. And to return to our main

theme, the different readings of (34a,b) below follow as

claimed from the different verb forms in the main clause, and

not from any ambiguity in when.

(34)a.   When I saw him he was running away.

   b.   When I saw him he ran away.

The Present Progressive and the Simple Present Tense

I began by introducing the temporal frame reading of the

progressive with the examples repeated here.

(35)a.   Mary was making coffee when John arrived.

   b.   Mary was making coffee at three o'clock.

c. John was playing the piano from ten to eleven.

d. Mary is reading the Globe.

cf.

e. Mary made coffee when John arrived.

f. Mary made coffee at three o'clock.

g. John played the piano from ten to eleven.

h. Mary reads the Globe.

I have proposed a semantics for the progressive in (35a-d) and discussed how different temporal relations are expressed in (35e-g). The difference between (35d) and (35h), which I turn to here, has been claimed to involve more than purely temporal considerations, chiefly by Woisetschlaeger (1977) and Goldsmith and Woisetschlaeger (1982), henceforth GW.

Goldsmith and Woisetschlaeger (1982)

GW claim that the progressive "expresses two semantic domains, one that is aspectual in a strict sense, and one that deals with a more abstract notion of 'metaphysical' status" (p.79). On their view the aspectual progressive marks atelicity; this is the property relevant to the Imperfective Paradox to be reviewed in Chapter 5. The main focus of GW's paper is what they call the metaphysical use of the progressive, marking

..a distinction which we shall call the

'structural/phenomenal' distinction...one may describe

the world in either of two ways: by describing what

things happen in the world, or by describing how the

world is made that such things may happen in it. (p.80)

For GW, the phenomenal progressive describes happenings while

the structural simple tense describes the way the world is

made. Their examples in support of this view include (36)

below.

(36)a.   The engine isn't smoking anymore.

   b.   The engine doesn't smoke anymore.

(36a) is appropriate only as an observation about current

happenings, as in the case where one is driving on the highway

and the engine smokes for a while, then stops smoking. A

passenger who suddenly notices that the engine has stopped

smoking would utter (36a) but not (36b). On the other hand,

if the car owner identifies the defect which causes the engine

to smoke and repairs it, he may assert (36b) even though the

engine is not running at the time; his utterance is not based

on observation of current happenings. GW claim that the

crucial difference here is that (36b), but not (36a), asserts

that the engine itself has changed and therefore the way the

world is is different, because of the repair which has been done.

A second example of the same kind is the contrast in (37).

(37)a. This law raises the price of oil by 10c a gallon.

   b. This law is raising the price of oil by 10c a gallon.

Again, (37a) describes the structural properties of the law as part of the way the world is, and is understood as saying something about the content and purpose of the law, while (37b) "refers to the observable consequences of the law" (p.82), which may be unintended. Similarly, the progressive in (38) "simply describes what is happening, what we might see if we simply opened our eyes".

(38) "Guys and Dolls" is playing at the Roxy.

In short, their view is that the simple tense illustrated here expresses the general structure of the world and is not about particular events, while the progressive expresses merely phenomenal information about what is going on and may be observed. They conclude (p.83-84)

   ..the meaning of the progressive does not involve any temporal notions.. It has not been an oversight that we

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have made no reference to time in analysing these
sentences. One of our central assumptions is that aspect
in language never deals with a mental representation
having the structure of a line, and consequently the
attempts made by many linguists and philosophers to map
the simple present and the progressive aspect in terms of
events or states marked on the real time line, extending
into the past and future, are necessarily inadequate to
account for natural language semantics.

GW's view is strongly opposed to the view proposed here, which
treats all the examples GW class as phenomenal progressives as
instances of the temporal frame reading, with the time of
utterance as the framed time: the present analysis is
explicitly temporal.

It should be clear that a notion of phenomenal information, as
opposed to structural information, cannot account for the
temporal frame reading found with point adverbials and the
progressive, and that only analyses which appeal to times can
account for what must be described as temporal overlap.
Recall that the aspectual progressive in GW's view marks only
atelicity, so the temporal frame examples in (35) must be
either GW's phenomenal progressive, or some third sense of the
progressive. But setting aside this considerable difficulty
and concentrating on the present tense progressive, I suggest

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that the phenomenal/structural distinction itself is
unsatisfactory.

Obviously the opposition GW draw is not the familiar division
between phenomena and noumena, but it seems that they intend
to use the term "phenomena" in roughly its usual sense, as in
their comment that "the progressive should make little sense"
in a case which "rarely has observable effects" (p.82). But a
wider range of examples shows that "phenomenal" in its usual
sense does not characterise progressive sentences.

(39)a.   The sky is almost green.

   b.   The soup smells peculiar.

   c.   The 21st century is approaching.

   d.   The need for school reform is getting urgent.

(39a,b) certainly give phenomenal information, ("cognizable by
the senses, or in the way of immediate experience; apparent,
sensible, perceptible" OED) and absolutely resist the
progressive, while (39c,d) are quite natural uses of the
progressive and not about phenomena in the sense at issue.

Perhaps we should take GW's use of the term in some other
sense. Their discussion and examples indicate that a
plausible reading is, as they put it, "describing what things
happen in the world", or "simply describing what is happening"

(p.80,81). In other words, the progressive describes events,
as surely anything which happens is an event.

There is a further point on which I think GW are confused. In
their discussion of (36a) and (37), repeated here,

(36a)   The engine isn't smoking anymore.
(37)   "Guys and Dolls" is playing at the Roxy.

GW class these progressives as phenomenal because they report
on what is or may be observed, overlooking the fact that to be
observed, the reported phenomenon must be cotemporaneous with
the utterance of the sentence: that is, the point of these
sentences is not that they report observable events, but that
they report current events, just as the temporal frame
semantics claims. Considering ''Guys and Dolls' was playing
at the Roxy last Tuesday", we see that a great deal more about
location on timelines needs to be said before we assert that
the phenomenon can be observed if we "simply open our eyes".
I maintain my position that the present progressive has the
current event reading, not because it is phenomenal, but
because it temporally locates the reported event at or around
the time of utterance.

This leaves open the possibility that the simple present tense
should be characterised in nontemporal terms as GW claim.

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What does the habitual simple tense mean? Consider (40).

(40)a. The engine smokes.

     b. The engine is smoking.

GW claim that (40a) is about the structure of the engine as part of the structure of the world, not about anything which is currently going on. I think it is fair to understand GW as claiming that (40a) is not about events at all. But surely if (40a) is true, there must be times when the engine smokes, although it doesn't matter when exactly. If in fact the engine has never smoked and never will smoke on any particular occasions, then (40a) is false.

So although the habitual here does not refer to any particular occasion of the engine smoking, I claim that the bare existence of such occasions is just what (40a) asserts.* That

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    *I draw an important distinction here between (i) and (ii).

(i) This engine smokes.
(ii) This engine runs on peanut oil.

The truth of (ii) does not require that the engine demonstrated ever has been operated or ever will be operated, fueled by peanut oil, but the actual subject of the predication is very different. If I point to an exhibited engine and utter (ii), even though I demonstrate a specific

is, the formula first introduced by Davidson without any representation of tense or aspect, which were irrelevant to his purpose, fairly represents the habitual.

(41)   Ee [smoke(e) & Theme(the engine,e)]

A difficulty with the existential quantifier is that it is indeterminate for plurality, asserting the existence of "at least one", but the habitual is generally understood to assert several or many such events. Nevertheless, I think the existential is correct here, strictly speaking.

(42)   A. The engine doesn't smoke.

       B. Yes it does.

       A. It does not! When has it ever smoked?

       B. What about that time we went to Fall River? It

          smoked like a volcano.

Although B may be accused of pedantry, his production of a

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object, it is not in fact the subject of my utterance, but serves to pick out the kind of which it is an instance, possibly the only one in existence. The kind, the engine design in abstract, is the subject of predication, and the property "runs on peanut oil" is a design feature. Sentence (ii) is not a habitual. It is also possible to understand (i) as a nonhabitual, if the engine smokes because of its design, and thus (i) can be seen as ambiguous, with the second reading as claimed for (ii): the subject of predication is an abstract object. The example (40a) will be discussed here only on the habitual reading.

single counterexample contradicts A's assertion in (42).

If this is correct, the difference between (40a,b) is a
difference in temporal location of events: (40a) reads "There
is an event of the engine smoking at or including the time of
utterance" and (40b) reads "There is at least one event of the
engine smoking", as represented in (43a) and (43b)
respectively.

(43)a. [Qt:t = t*] Ee[[At(e,t)] v [Et':t is a proper subset of
        t' & at(e,t')]] & smoke(e) & Theme(the engine,e)]
    b. Ee[smoke(e) & Theme(the engine,e)]

The representation in (43b) places no restriction at all on
the times of the events; pragmatic considerations add the
information that the engine smokes when it is being operated,
possibly on all such occasions, possibly on most such
occasions, possibly on few such occasions. Pragmatics also
confines the time range during which such occasions fall to
the time of the engine's working existence.

The Temporal Range of Habituals

The second of these pragmatic restrictions, that the relevant

range of time is the existence of the machine in working
order, is comparable to the temporal range of predications of
characteristic attributes, such as those in (44).

(44)a.   Mary is tall.

   b.   John is easy-going.

   c.   Angela is a busdriver.

   d.   Except for the messy debris on top, the Hancock is a
        beautiful building.

If Mary is an adult, her tallness is probably bound in time by
most of her adult life; she may not have been a tall child,
and she may lose height in old age. John's easy-goingness may
relate to his whole life except for the part of his infancy
when such social qualities are not developed. Angela's being
a busdriver probably holds for some years of her adult life,
at least enough time for busdriving to be considered her
occupation, and the Hancock's beauty lasts as long as the
building stands undamaged. In each case the times include the
time of utterance but are vaguely bounded, with the
approximate bounds provided by our knowledge of the world. I
claim that the simple tense habitual is just an assertion of
the existence of events, with the temporal range in which the
events may fall provided by the same pragmatic restrictions.

Stage-level and Individual-level Predications

This is not unlike Carlson's (1977:449) comment that the progressive vs. nonprogressive distinction is probably the same as his distinction between what he calls stage-level predicates and individual-level predicates. An object enduring over time can be seen as made up of brief stages of the object, the whole set of these stages or temporary objects constituting the object as a whole, viewed as a space-time worm. Individual-level predications are predicated of the whole worm, or as I have shown above, of substantial and vaguely bounded sections of it, while stage-level predications are predicated of briefer and more sharply bounded sections or stages. According to the analysis given here, a progressive sentence reporting an event locates that event at least at a given time. Following Carlson's distinction, we could say that the stage of an individual of which a thematic relation to such an event is predicated is determined by the given time, or more generally, the distinction could be made this way: the predications Carlson describes as individual-level hold at times which are fixed by pragmatic considerations, as outlined above, while the predications he terms stage-level, including progressives, are true of independently dated or temporally located events, and perhaps of temporally located, therefore temporally determined participants.

GW mention Carlson's distinction in a footnote, but dismiss the notion of stage-level predications:

We admit that we have each tried to imagine what manifestations of Erich Woisetschlaeger would actually like, but without success. Ironically, W.V.O.Quine had the same problem when approaching the famous but anonymous Hungarian who pointed to a gavagai; Quine could never explain to his own satisfaction why he was incapable of taking the Hungarian to be pointing to time-slices of rabbit. (p.80 fn.3)

This cavalier dismissal I think indicates that GW have not understood the proposal. They seem to take a "temporary manifestation of an individual" as a bizarre sense datum flashing in and out of existence, whereas the notion Carlson appeals to is better described as "an individual at a certain time (and place). Once this is realised it becomes clear that (i) one can easily imagine what Erich Woisetschlaeger looks like only at a particular time, rather than what he looks like throughout his existence, (ii) Quine had no problem understanding the Hungarian to be pointing to a rabbit at a particular time (and place), as he wrote "Point to a rabbit and you have pointed to a stage of a rabbit.."(Quine (1960:52)); his discussion rests partly on the fact that such

stages are not understood to be the meanings of words, which

is a different matter entirely, and (iii) the stage/individual

contrast not only captures GW's intuition that predications

judged by Carlson to be individual-level are somehow about the

enduring nature of individuals, and hence about the structure

of the world, but also captures the fact that stage-level

predications also temporally locate the event or situation

itself. In other words, to say that "The engine isn't smoking

anymore" is about the engine at a particular time is to say

that the sentence is about a state of affairs at a particular

time. As I have argued above, it is this temporal

locatedness, rather than the possibility of observable

phenomena, which more exactly characterises the progressive.

The Quantificational Structure of Habituals

I said above that habituals like "The engine smokes" are

restricted in interpretation by pragmatic considerations in

two ways: the second is that the smoking-engine occasions fall

within the engine's existence in working order, and the first

is that during that interval, the engine smokes only on

occasions when it is in operation. The analysis I give in

(43b), repeated here, states that the quantification over

events is existential, and as above the pragmatic restriction

is vague among the possibilities that the engine smokes on all, most or few occasions of being operated.

(43)b.   Ee [smoke(e) & Theme(the engine,e)]

But the intuition that occasions of the engine smoking are a subset of occasions of the engine running suggests a different view of the semantics of habituals, that they involve restricted quantification over occasions, and that the structure of this example should be as in (45).

(45)   [Qt:Ee[run(e) & Theme(the engine,e) & At(e,t)]]
       Ee′[smoke(e′) & Theme(the engine,e′) & At(e′,t)]

       Q occasions of the engine running are occasions of the engine smoking.

The intuition that habituals involve restricted quantification is sharper with certain sentences containing adverbials, as in an (unattributed) analysis cited and rejected by GW (p.80): "'Bill walks to school' has on occasion been analysed as 'If any event is an occasion of Bill's going to school, then it is an occasion of his walking'", in which the universal quantifier is the value of Q.

Adjectival and Non-Adjectival Quantifiers

To clarify the issue of choice between (43b) and (45) as the
form of habituals, we need the distinction between adjectival
and non-adjectival quantifiers, as defined in Higginbotham
(1987:48): "...a quantifier Q is of **adjectival character** if the
truth value of the instances of **Q A are B** depends only on how
many things are both A and B...a quantifier is of adjectival
character if and only if it is **symmetric**, in the sense that **Q
A are B** is always equivalent to **Q B are A**."

In illustration, the existential quantifier is adjectival on
this definition. The formula "Ex(raven(x) & black(x))" is
unmarked for plurality, stating only that at least one thing
is both black and a raven, corresponding to the sentence
"A/some raven is black"; "Some ravens are black" is understood
to mean that at least two things are both black and ravens.
The difference is not a difference in the quantifier, but
follows from the fact that count nouns must bear number
features. The equivalences of "Some black thing is a raven"
and "Some raven is black", and "Some black things are ravens"
and "Some ravens are black" demonstrate symmetry.

Other adjectival quantifiers include **many, several, a few,** the
cardinal numbers and the negative existential **no,** bearing in

mind that some quantifiers have both adjectival and
nonadjectival senses.[7]

Non-adjectival quantifiers include **the, both, all** and **most**.
The truth-value of "All ravens are black" depends not only on
how many things are both black and ravens, but also on how
many things are ravens and not black: if any thing is a raven
and not black the sentence is false. "All ravens are black"
is not equivalent to "All black things are ravens", thus **all**
is not symmetric.

The definitions cited here state conditions on propositions of
the form "Q A are B", in which Q is a relation on sets. This
allows for generalisations over all quantified statements, and
reflects the syntax of the canonical quantifier category,

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[7]**Few** and **many** are adjectival in contexts like (i) and
(ii).

(i)   There are few exceptions to this rule.
(ii)   There are many pleasant walks in this area.

A non-adjectival use of these quantifiers is shown below (see
Peterson (1979) for a full discussion).

(iii) Many US servicemen are in Saudi Arabia.
(iv)   Few US servicemen are in Saudi Arabia.

If the number of servicemen in Saudi Arabia is estimated in
absolute terms, treating the quantifiers adjectivally, then
the number is large and (iii) is true, but if the number is
estimated as a proportion of all US servicemen, treating the
quantifiers non-adjectivally, then the number is well less
than half and (iv) seems nearer the truth than (iii). (These
examples are now out of date.)

which is the determiner. In a sentence with a determiner
quantifier, such as "Some people arrived", the sets A and B
are denoted by the predicates **people** and **arrived**; the presence
of both predicates is required for syntactic wellformedness,
as the determiner must have a complement and the sentence must
have a predicate.

Another way of looking at the peculiar character of adjectival
quantifiers is to say that they are not binary but unary, in
that they state the cardinality of a single set, even though
this set is often described as an intersection. That is, if Q
is adjectival, "Q A are B" is equivalent to "$|C| = \|Q\|$", where
Q denotes a cardinality and the set C is identical to A∩B.
This is clearer in sentences such as those in (46), where only
one predicate as possible argument to the quantifier appears.

(46)a. There are five continents.

    $\text{Five}_x [\text{continent}(x)]$

    $|\|\text{continent}\|| = 5$

   b. There are many problems.

    $\text{Many}_x [\text{problem}(x)]$

    $|\|\text{problem}\|| = \text{many}$

Clearer examples are found when we turn to the adverbial
quantifiers used to quantify times and events, evading the
syntax of the nominal system.

(47)a.   John often laughs.

        Many$_e$ [laugh(e) & Agent(j,e)]

    b.   It seldom rains.

        Few$_e$ [rain(e)]

In the discussion which follows I emphasise that the relevant

difference between adjectival and non-adjectival quantifiers

is that adjectival quantifiers are logically unary, while non-

adjectival quantifiers are binary. ■

The notation used here to represent restricted quantification

was first introduced to allow for a uniform analysis of

natural language quantifiers, including those which are not

first-order reducible according to the following definition.

(48)   A quantifier Q is first-order reducible iff there is a

       first-order quantifier Q´ and

■On the view that a quantifier is a relation on sets by
definition, the notion of a unary quantifier is oxymoronic. I
note the possible objection, but I continue to use the term
"quantifier" for both kinds because I think this accords best
with general use: the term "quantifier" resembles the term
"preposition" (and others) in that at bottom we use them on
the grounds "I can't define it but I know one when I see one".
The term functions primarily as the name of a set of
expressions, with a more precise definition for some writers
but not all. Just as "unary quantifier" will be oxymoronic
for some, "intransitive preposition" will be oxymoronic for
some writers, but not all.

there is a truth-function f such that

Q(A,B) = Q'(A f B)

That is, first-order reducible quantifiers are those which can
be analysed in the same way as the logical quantifiers:

All Fs are G.   Ax[F(x) → G(x)]

Some F is G.   Ex[F(x) & F(x)]

If a quantifier Q is adjectival, then by definition "Q As are
B" is equivalent to "Q(A∩B)", which is equivalent to "Qx[F(x)
& G(x)]", so adjectival quantifiers are first-order reducible.
The problem arises with non-adjectival quantifiers other than
the universal, such as **most**, or **many** and **few** on the non-
adjectival reading, because there is no truth-function f such
that, for example, "Most Fs are G" is equivalent to
"Most$_x$[F(x) f G(x)]".

The restricted quantifier notation echoes the syntactic form
of sentences such as "Most spiders are harmless" and "All men
are mortal", in which the determiner and noun form a
constituent, as in (49); the predicate denoting the set F
combines with the quantifier to restrict its range. This
allows a uniform analysis of non-adjectival quantifiers.

(49)a. [Most $_x$ spider(x)] [harmless(x)]

b. [Ax:man(x)] [mortal(x)]

The desirability of giving natural language quantifiers a uniform analysis which resembles the syntactic structures they appear in argues for representing adjectival quantifiers the same way, so that "Some spiders are deadly" will be analysed as in (50).

(50)   [Ex:spider(x)] [deadly(x)]

But such an analysis fails to make it clear that all of (50) are equivalent, and that this holds only for adjectival quantifiers.

(51)a. Some spiders are deadly.

b. Some deadly things are spiders.

c. There are deadly spiders.

d. [Ex:spider(x)] [deadly(x)]

e. [Ex:deadly(x)] [spider(x)]

f. Ex [spider(x) & deadly(x)]

In short, syntactic similarities among determiners conceal logical differences among quantifiers. Accordingly, I shall use the restricted quantifier notation to distinguish non-adjectival quantifiers.

Adverbial Quantifiers and Habituals

The issue I began with was the choice between (52a) and (52b) as analyses of "The engine smokes".

(52)a. Ee[smoke(e) & Theme(the engine,e)]

     b. [Qt:Ee[run(e) & Theme(the engine,e) & at(e,t)]]

          Ee'[smoke(e') & Theme(the engine,e') & at(e',t)]

The choice can now be described in these terms: (52a) adjectivally quantifies the occasions of the engine's smoking, saying merely that there are some occasions of that kind. We can understand "The engine smokes" without appealing to the number of occasions of any other type, such as occasions of the engine's running. (52b) expresses the number of occasions on which the engine smokes as a proportion of those occasions on which the engine runs, and our understanding of "The engine smokes" appeals to the number of occasions on which the engine runs.

I suggest that the analysis of a habitual without overt quantification, such as "The engine smokes", is clarified by comparison with overtly quantified habituals such as those in (47) above. The main adverbial quantifiers to be considered are:

(53) Adjectival: often   many

                        sometimes   some

                        occasionally   some

                        seldom   few

                        never   no

   Non-adjectival:

                        always   all

                        usually   most

                        often   many

                        seldom   few

The non-adjectival quantifiers are binary, and accordingly

always and **usually** must relate two secs, as is illustrated by

the well-known example in (54).

(54)a. Cats always land on their feet.

   b. AtEe[land on feet(e) & Theme(cats,e) & at(e,t)]

   c. ⌐At:Ee[fall(e) & Theme(cats,e) & at(e,t)]]

       Ee'[land on feet(e') & Theme(cats,e') & at(e',t)]

If (54a) is represented as (54b), the universal has no first

argument restricting its domain and is understood to take the

whole domain as its range, giving the reading "All times are

times of cats landing on their feet", which is incorrect. It

has been suggested (Schubert and Pelletier (1987:444)) that

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(54a) is understood as "Cats land on their feet whenever they
fall", represented in (54c), appealing to our knowledge of
fallings and landings to supply the restrictive set of
occasions. Alternative analyses, which dr꜂ the restrictive
set from the expressed content rather than from pragmatics,
are in (55).

(55)a. [At:Ee[land(e) & Theme(cats,e) & at(e,t)]]

        Ee'[land on feet(e') & Theme(cats,e') & at(e't)]

   b. [Ae:land(e) & Theme(cats,e)] [land on feet(e)]

The difference between (55a) and (55b) is the difference
between two events on the same occasion and two descriptions
of the same event, and for this example I consider (55b), "All
cat-landings are on-the-feet-landings" to be more accurate
than (55a), "All occasions of cats landing are occasions of
cats landing on their feet". This contrasts with (56).

(56)a. My cat always yowls when it rains.

   b. [At:Ee[rain(e) & at(e,t)]] Ee'[yowl(e') & Agent(my

        cat,e') & at(e',t)]

Although all raining occasions are cat yowling occasions, it
is not the case that rainings are cat-yowlings, although it is
the case that cat-landings are on-the-feet-landings. I
distinguish between generalisations over occasions and events

as in (57), where (57a) asserts that all occasions of P are occasions of Q, and (57b) asserts that all P events are Q. *

(57)a.   [At:Ee[P(e) & at(e,t)]] Ee'[Q(e') & at(e',t)]

   b.   [Ae:P(e)] [Q(e)]

Further examples of binary quantified habituals are in (58), with capitals indicating stress.

(58)a.   Mary usually writes papers on the computer.

   b.   Mary usually writes PAPERS on the computer.

   c.   Mary usually writes papers on the COMPUTER.

   d.   MARY usually writes papers on the computer.

The usual interpretation of (58a), in line with (55b) above, places all content but the adverbial in the restrictive clause, but the examples in (58b-d) show that the division of sentence content into the restrictive and main clauses of the logical representation is sensitive to stress. The stressed content falls in the main clause, as below.

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*If the distinction made here between generalisations over events and generalisations over occasions is correct, it supports the case for Neo-Davidsonian representations as opposed to the tense logical representations used above, which as stated cannot make the distinction.

(59)a. [Most _;write papers(e) & Agent(m,e)] [write on

computer(e)]

b. [Most _;write on computer(e) & Agent(m,e)] [write

papers(e)]

c. = (58a)

d. [Most _;write papers on computer(e)] [Agent(m,e)]

with the approximate readings:

a. When Mary writes papers, it's usually on the computer.

b. When Mary uses the computer, it's usually to write

papers.

d. When someone writes papers on the computer, it's

usually Mary.

To sum up, the arguments to binary adverbial quantifiers may

be sets of occasions or sets of events. The division of

sentence content into predicates of the two sets (occasions or

events) places stressed content in the main clause, which is

consistent with the observation that content in the

restrictive clause is presupposed rather that asserted, and

that stress marks asserted content, not presupposed content.

Now consider (60).

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(60)a.   John usually reads.

   b.   Mary always laughs.

   c.   Angela generally walks.

These examples resemble sentence (54), in that they clearly do
not mean "Most times are times of John reading", "All times
are times of Mary laughing", and "Most times are times of
Angela walking", assuming here that **generally** is roughly
synonymous with **usually**. Unlike (54), however, these
sentences do not provide sufficient content to be divided into
two predicates of occasions or events, and we must appeal to
pragmatics to assign a value to P in the representations
below.

(61)a.   [Most $_e$Ee[P(e) & at(e,t)]] Ee´[read(e´) & Agent(j,e´)
         & at(e´,t)]

   b.   [At:Ee[P(e) & at(e,t)]] Ee´[laugh(e´) & Agent(m,e´) &
        at(e´,t)]

   c.   [Most $_e$P(e)] [walk(e) & Agent(a,e)]

The obvious source (perhaps the only source) for the value of
P is the preceding discourse, providing for (60a-c), for
example, the restrictions "..on train journeys", "..when John
cracks those awful jokes", and "..when she goes to town".

The point to be emphasised here is that without some available

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value for P the sentences in (60) are not fully intelligible, reflecting the binary character of the quantifiers. Without two sets of events or occasions the sentences are semantically ill-formed.

Compare these with the adjectivally quantified sentences in (62).

(62)a.   John often reads.

b.   Mary never laughs.

c.   Angela seldom walks.

It should be clear that these sentences are complete as they stand, and are not understood as expressing restricted, or proportional, quantification, asserting merely "There are many events of John reading", "There are no events of Mary laughing", and "There are few events of Angela walking", as below.

(63)a.   Many$_e$ [read(e) & Agent(j,e)]

b.   ¬Ee[laugh(e) & Agent(m,e)]

c.   Few$_e$[walk(e) & Agent(a,e)]

I note that if the sentence contains enough content to provide two predicates, or discourse provides a potential restrictive clause, the non-adjectival reading of **often** and **seldom** is

available. So in a conversation about train journeys (62a)
may state that many of the occasions on which John travels by
train are occasions on which he reads, even though in general
he hardly ever reads. Similarly, (64a) below is ambiguous
between (64b) and (64c), although (64b) is the preferred
reading if there is no contrastive stress.

(64)a. John often reads in bed.

   b. Many$_e$ [read in bed(e) & Agent(j,e)]

   c. [Many $_e$read(e) & Agent(j,e)] [in bed(e)]

I return now to the starting point of this discussion, which
was the quantificational structure of habituals with no overt
quantifiers.

(65)a. The engine smokes.

   b. John reads novels.

   c. Mary paints landscapes.

   d. Beavers build dams.

   e. Raccoons come here.

   f. Mary teaches Latin.

In the contrast between the incomplete "John usually reads",
with a binary quantifier, and "John seldom reads", with a
unary quantifier, the examples in (65) fall with the unary
quantifiers and are semantically complete. They are not

understood as proportional statements. The fact that an engine smokes when it is running is just part of our knowledge about engines, and as I commented earlier, (65a) is indeterminate among the possibilities "The engine smokes on all/most/some/few of the occasions on which it runs", which indicates that the statement is not proportional. (65b) means simply that events of John's reading novels occur, neither that John reads novels on some proportion of the occasions when he reads, nor that John reads novels on some proportion of the occasions when he does something with novels. I analyse all of (65) in the same way as (52a) above.

(66)a. Ee[smoke(e) & Theme(the engine,e)]

    b. Ee[read(e) & Agent(j,e) & Theme(novels,e)]

    c. Ee[aint(e) & Agent(m,e) & Theme(landscapes,e)]

    d. Ee[build(e) & Agent(beavers,e) & Theme(dams,e)]

    e. Ee[come here(e) & Agent(raccoons,e)]

    f. Ee[teach(e) & Agent(m,e) & Theme(Latin,e)]

I consider the special interpretations which habituais often receive to be partly conventional. We understand (65d) as describing a species characteristic, but do not understand (65e) the same way, because of our knowledge of the kinds of behaviour which are species-specific. Both (65b) and (65c) may be about leisure activities, engaged in frequently or very intermittently, and (65c) and (65f) may be about professional

activities, but not (65b), just because novel-reading is rarely a paid activity, if ever. A habitual understood as describing a professional activity is then also understood to describe an activity engaged in very regularly, but this temporal content is inferred, not expressed. All these differences depend on our knowledge of the world.

The indeterminate frequency of events of which a habitual predication is true is also discussed by Carlson (1977:441), whose examples I give here.

(67)a. Jake wears contact lenses.

    b. Jake runs to school.

    c. Jake runs the mile in 3:58.2.

    d. Jake writes novels/short stories/poems.

    e. Jake mows his neighbour's lawn.

    f. Kenney beats small children.

Carlson comments that these examples "vary greatly in truth-conditions", with respect to the frequency of events. My position, here as elsewhere, is that implicature and convention may play a larger part in the interpretation of such sentences than is commonly thought; that which is communicated or understood need not be entailed.

In the next two sections I shall discuss certain aspects of

Kratzer's (1988) analysis of what I take to be habitual predications; as I shall outline below, Kratzer claims that these habituals have no event variable, in contrast to my analysis of habituals presented here.

Bare Plurals

My view of the difference between (65d) and (65e)

(65)d.   Beavers build dams.

   e.   Raccoons come here.

also differs sharply from the approach in Kratzer (1988) and writers cited there, who claim that the bare plural is existentially quantified in (65e) and generically (or some say universally) quantified in (65d). That is, where a predication is understood to characterise the kind denoted by the bare plural, the bare plural introduces a variable which is bound by a quantifier of generality.

My reservations about this approach stem partly from the difficulty in establishing the quantifier of generality. The universal is clearly incorrect as general statements about characteristics of kinds are not falsified by the existence of

counter-examples. For example, "Dogs have four legs" is true despite the existence of dogs which have only three, by congenital deformation or injury. It also appears that "most" cannot be correct, because of sentences like (68).

(68)   Pythons bear living young.

Clearly (68) characterises pythons as a kind, but it is false that most pythons bear living young, given that only mature females bear young; taking into account that not all mature females breed successfully, the actual proportion of all pythons which bear living young is probably less than half. So the problem is that the quantifier of generality proposed for generics does not pick out a proportion of the members of the kind in a uniform way.

This is further illustrated by examples such as (69a), the ambiguity of which Kratzer analyses as in (69b,c).[10]

(69)a. Hurricanes arise in this part of the Pacific.

     b. Gx[hurricane(x)] E[arise(x,l) & this part of the Pacific(l)]

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[10]Kratzer represents the Davidsonian argument with "l" because she considers the variable to range over space/time locations rather than events; l here is a substitute for e.

c.   G$_1$[this part of the Pacific(l)] Ex[hurricane(x) &

 arise(x,l)]

(69b) represents (69a) as characterising hurricanes, and (69c)

as characterising this part of the Pacific. For (69b) there

remains the problem of determining what proportion of all

hurricanes the predication must be true of, but (69c) raises a

second question: what exactly does it mean to quantify in this

way over a singular demonstrative? Perhaps a key remark is

Kratzer's comment that the quantifier is "a generic operator

like 'typically' whose exact nature is not at issue here". I

agree that "typically" is an excellent gloss for the readings

at issue, but I do not consider it to be a quantificational

adverb. For generic predications such as "Beavers build dams"

I agree that we understand an implicit "typically" or

"characteristically", but I consider these are not

quantificational and are probably inferred by way of our

knowledge of the world. [11] [12]

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[11]Adverbs such as **typically** or **characteristically** are
perhaps comparable to the non-Manner reading of adverbs like
rudely in "Lisa rudely departed", meaning "Lisa departed, and
it was rude of her to do so". Compare this with "Lisa
characteristically left early" or "Beavers build dams" as
"Lisa left early, and it was characteristic of her to do so"
and "Beavers build dams, and it is characteristic of them to
do so". See McConnell-Ginet (1982) and Higginbotham (1989)
for analyses of the **rudely** class.

[12]See Carlson (1977) for a full discussion of problems
with the quantificational analysis of bare plurals understood
as generic.

On the assumption, shared here, that habituals are individual-level predications, my analysis is incompatible with Kratzer's (op.cit.) proposal that individual-level predicates lack event variables. Although space does not permit a full presentation of her analysis, I will raise a few points here.

First, among Kratzer's arguments for the distinction made between individual-level and stage-level predicates, distinguishing individual-level predicates as "non-Davidsonian" in lacking an event variable, she cites the contrasts in (70).

(70)a. * When Mary knows French, she knows it well.

   b.   When a Moroccan knows French, she knows it well.

   c.   When Mary knows a foreign language, she knows it well.

   d.   When Mary speaks French, she speaks it well.

   e. * When Mary speaks French, she knows it well.

   f. * When Mary knows French, she speaks it well.

In her analysis of these sentences below, **when** is a generalised universal quantifier, with the restrictive clause provided by the **when**-clause and the nuclear scope by the main

clause. The universal quantifier must bind a variable in each clause, and in Kratzer's analysis, the free variable may the Davidsonian 1 variable, which occurs only with a stage-level predication (e.g. **speak**), or a free variable provided by an indefinite noun phrase. (70a,e,f), analysed as (71a,e,f), are ill-formed because neither the proper names nor the individual-level predicate **know** can provide a free variable, and the quantifier is then vacuous, which is ungrammatical.

(71)a.* Always[knows(Mary,French)] [knows well(Mary,French)]

    b. Always $_x$[Moroccan(x) & knows(French,x)] [knows

        well(French,x)]

    c. Always $_x$[foreign language(x) & knows(Mary,x)] [knows

        well(Mary,x)]

    d. Always $_1$[speaks(Mary,French,1)] [speak

        well(Mary,French,1)]

    e.* Always $_1$[speaks(Mary,French,1)] [knows

        well(Mary,French)]

    f.* Always[knows(Mary,French)] [E $_1$[speak

        well(Mary,French,1)]

I suggest an alternative view of the ill-formedness of these sentences. Agreeing that **when** here universally quantifies events or occasions, it is logically well-formed but anomalous in construction with "Mary knows French" simply because this is not the sort of situation which is multiply instantiated.

The same problem occurs in the formally very different example below.

(72)   In every city I was born in there is a Byzantine cathedral.

(72) is logically well-formed and true, on the usual logical analysis. (73a) is true if any of (73b-d) holds.

(73)a.   [Ax:city(x) & I was born in x] Ey[Byzantine cathedral(y) & in(y,x)]

b.   There in no city where I was born: either I was born in the country or I was not born.

c.   There are many cities I was born in, as I have been reincarnated many times, and every such city has a Byzantine cathedral.

d.   The city I was born in has a Byzantine cathedral.

Nevertheless, (72) is bizarre because unlike the logical universal quantifier, **all, every** and universal **when** at least in use carry both existential commitment and commitment to plurality. The bizarreness of (70a,e,f), just like the bizarreness of (72), follows from using a natural language universal to range over a set which is understood to be single-membered. The problem can be manipulated: "Every time Mary was tall she spoke French" is a lot worse than "Every

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time Alice was tall something went wrong". Universal when is

one reading of **whenever**, which also means, roughly, "at the

time, no matter when it was". The ambiguity appears in (74a)

but not in (74b), which can only have the nonspecific singular

reading, but note that the predicate is stage-level in (74b).

(74)a.   Whenever John went to school he took my bike.

    b.   Whenever this tree fell it must have made a mighty

          crash.

Secondly, Kratzer also discusses the interpretation of bare

plurals in examples such as (75), in line with the

quantificational view of bare plurals mentioned above.

(75)a.   Firemen are available.

    b.   Firemen are altruistic.

Kratzer claims that bare plurals are like singular indefinites

in introducing a free variable, and also that the subject of a

stage-level predicate is base-generated in the Spec of VP.

Thus the subject of the stage-level predicate in (75a) is

within the scope of existential closure, giving the reading

"There are firemen available". The subject of the individual-

level predicate in (75b), however, is base-generated in the

Spec of IP outside the scope of existential closure, hence the

(default quantificational) reading "All firemen/firemen in

general are altruistic". From this it follows that predicates like **like** and **appreciate** are individual-level for Kratzer because the bare plural subjects in (76) must be interpreted generically, not existentially, and thus **like** and **appreciate** in (76) have no event position.

(76)a. Children like movies.

   b. Speakers appreciate comments.

But I claim that the ambiguity of quantification in (77) demonstrates the presence of an event variable in the predicate.

(77)a. Children often like movies.

   b. Speakers often appreciate comments.

Kratzer's view can account for the readings in (78a,b), but surely the readings in (78c,d) must arise as represented, by **often** binding the event variable; note also that in (78c,d) where the quantification binds the event, the bare plural is generically interpreted, and the predication must be classed as individual-level.

(78)a. Many$_x$ [child(x) & like movies(x)]

   b. Many$_x$ [speaker(x) & appreciate comments(x)]

   c. Many$_e$ [like movies(e) & Exp(children,e)]

d. Many$_\bullet$ [appreciate comments(e) & Exp(speakers,e)]

Finally, Kratzer claims that existential closure over VP binds singular indefinites in VP, thus making them unavailable for binding by higher quantifiers. I must differ on this point to account for (79).

(79)a. ? John reads a book.

b. John seldom reads a book.

Having stated that the existential quantifier itself is indeterminate for plurality, I noted that this indeterminacy is resolved by the number features required on noun phrases with count nouns, distinguishing "A book is on the table" from "Some books are on the table". I believe that the oddness of (79a) arises because the existential closure quantifier, indeterminate for plurality, takes narrower scope than a book, marked for singularity. Thus we can understand (79a) to assert the occurrence of more than one reading event, but only one book is involved. In (79b) the overt quantifier seldom has scope over a book, giving the salient reading that there is a different book for each reading event. Recall that wide scope for adverbial quantifiers was independently shown for (77).

Summary: Quantification and Habituals

So-called habitual sentences present an event variable and a predicate on that event, which may take the form of a series of conjuncts.

$e[P(e) \& R(e)..]$

If the sentence contains no overt quantifier the event variable is bound by existential closure at the level of VP. The mechanism of existential closure will be discussed further in Chapter 4.

$Ee[P(e) \& R(e)..]$

If the sentence contains a unary quantifier, the quantifier binds the event variable.

$Qe[P(e) \& R(e)..]$

If the sentence contains a binary quantifier, the quantifier relates either two sets of events or two sets of occasions.

$[Qe:P(e)] [R(e)]$

$[Qt:Ee[P(e) \& at(e,t)]] Ee'[R(e') \& at(e',t)]$

The value of R must be drawn from content expressed in the sentence, while the value of P may be either drawn from sentence content or provided by context. Where both P and R are drawn from sentence content, stressed content is assigned to R.

Summary: The Progressive as a Temporal Frame

I began by outlining the traditional insight that the
progressive presents an event as temporally framing a time
denoted by a temporal adverbial, or in the present
progressive, the time of utterance. A consideration of
interval-denoting adverbials such as "from ten to eleven
o'clock" revealed that this framing effect cannot be stated as
an entailment, as it was in earlier formalisations, because
the presence of an event of longer duration than the framed
time is not entailed. I responded by proposing the following
form of truth condition for the progressive, according to
which the event occurs at least at the given time:

$$[Qt:R(t)] \ (Ee[[at(e,t)] \lor [Et'[t \text{ is a proper subset of}$$
$$t' \ \& \ at(e,t')]] \ \& \ P(e)])$$

On this definition, the temporal frame reading arises by
implicature.

The familiar observation that temporal **when**, relating simple
tense sentences, apparently has a sequential reading has led
many writers to suggest that **when** is ambiguous, accounting not
only for the sequential reading of simple tense sentences with
when, but also for the simultaneous or overlapping reading of

progressive sentences by the semantics of when, rather than by a difference in the verb forms themselves. This approach was discussed and rejected, in favour of an analysis in which the when-clauses at issue are indeed a type of point adverbial, and interpreted in the same way as other point adverbials.

GW's rival analysis for the present simple vs. present progressive distinction in nontemporal terms was also discussed and rejected. It was established that the present progressive is more plausibly analysed as an instance of the temporal frame semantics. The distinction between the present progressive and the simple present tense as a temporal distinction required a further exploration of the semantics of habituals, which I claim have the logical structure of the original Davidsonian representation, merely an existential quantification over events. In response to existing alternative analyses of the habitual, I reviewed the interaction of habituals and adverbial quantification.

In the next chapter I turn to the problem of statives, which are generally considered (for some writers by definition) to resist the progressive. As the reader may anticipate, habituals are plausibly classed as a kind of stative and will be discussed further.

CHAPTER 3

PREDICATES WHICH RESIST THE PROGRESSIVE

It s well known that many predicates cannot appear in the progressive, the chief types being the verbal, adjectival and nominal state predicates such as (1a-c), and verbal predicates like notice in (1d), which are classed as achievements in a Vendler classification; that is, they describe bounded events considered to be punctual.

(1)a. * John is knowing how to fix the car.

  b. * John is being tall.

  c. * John is being a taxidermist.

     (= "John is a taxidermist", not "John is playing or pretending to be a taxidermist".)

  d. * John is noticing the hole in the floor.

Copular constructions with **be**, generally considered never to take the progressive as in (1b,c), will be discussed below. I agree with writers who propose that there is an agentive **be** distinct from the copula. Agentive **be** appears with any adjectival or nominal complement for which the property attributed to the subject may be understood as simulated or in some way under volitional control; this construction describes actual behaviour rather that a characteristic property, and as

such takes the progressive as illustrated below.

(2)a.   John is being nice/obstructive/unusually talkative.

   b.   John is being William Burroughs.

   c.   Be William Burroughs!

   d.   Be nice!

   e.   John was deliberately obstructive.

   f.   Mary persuaded John to be nice.

The examples in (2c-f) show agentive **be** in environments which require agentive predicates independently of the progressive, indicating that the progressive is not responsible for the agentive reading of (2a,b). Agentive **be** is an activity predicate, not a state predicate, and as such is expected to occur in the progressive.

State Predicates

The ill-formedness of (1a-c) and further state predicate examples in (3) has led some researchers to seek an explanation in terms of the semantic incompatibility of the progressive and state predicates in general.

(3)a. * John is owning a lot of land.

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b. * These books are costing $35.00.

c. * That coat isn't belonging to me.

d. * That cupboard is containing cleaning equipment.

This requires an understanding of what states are, or some definition of states from which the incompatibility with the progressive will follow.

There are three main types of approach to this question. The earliest and more philosophical approach seeks to understand the nature of states and events themselves, appealing to linguistic phenomena on occasion as a means to that end. In the modern literature this approach revolves around the work of Ryle (1949), Kenny (1963) and Vendler (1967), drawing on work begun by Aristotle.

Writers such as Lakoff (1965) and Vlach (1981) seek primarily to treat the linguistic phenomena, and are content to establish definitions of predicates they term "stative", rather than of states themselves, in terms of those linguistic phenomena. On this approach stative predicates are identified by the use of diagnostic tests. For example, statives do not appear in the Imperative, do not take modification by adverbs such as **deliberately**, do not appear in complements to **force**, etc. Although the exact set of diagnostic tests varies from writer to writer, the most important test, agreed to by all,

is that statives resist the progressive: on this view, statives resist the progressive by definition.

The third approach combines aspects of the first two, seeking to explain such facts as the ill-formedness of (1) and (3) by appealing to the interaction of the nature of states and events, the way linguistic expressions describe states and events, and our pragmatic use of knowledge of the world. This approach draws on the metaphysical insights achieved by the philosophical tradition.

I make a few remarks here about the second approach before proceeding. I have already cited and rejected Vlach's (1981:273) definition of stativity in Chapter 2.

I consider Lakoff's (1965) tests for stativity not to test for a uniform semantic property, but to be sensitive to at least three properties of predicates, not only the state vs. event distinction, but also distinctions among types of events (punctual vs. non-punctual) and agentivity. Lakoff's observation that statives do not appear in the imperative and cannot be modified by such adverbs as **carefully, deliberately** clearly stems from the fact that these tests detect agentivity. Statives cannot appear in complements to **force** because **force** requires an event predicate in its complement, as in "I forced the tap to turn the wrong way", and as I shall

argue here, the fact that statives resist the progressive may stem from a uniform semantics for the progressive, but not from a semantic property common to all stative predicates, so defined. I therefore use the term "state predicate" rather than "stative predicate" for predicates true of states, as I consider the term "stative" as conventionally used to pick out an epiphenomenal class, whose members are assigned to it for various reasons; statives are not a semantic class.

In the characterisation of states there has been some consensus, if I am right in taking the various descriptions of states as stemming from closely related intuitions.

On Vendler's view, states have this property:

A loved somebody from t1 to t2 means that at **any** instant between t1 and t2 A loved that person.

In other words, states are continuous, holding at every instant within an extended time of holding. States are also said to contain no changes, or to have no endpoints. From examples like "John loved Mary for three years" we see that the lack of endpoints in states does not mean that states are eternal, but only that states do not essentially have onsets and culminations, unlike achievements and accomplishments, or any predicates of transition. They contrast with realising,

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which is coming to know, and therefore the onset of a state of
knowledge, and burning to ash, a burning process which must
end when all is reduced to ash. States do not have such
essential endpoints. Onsets and culminations are a type of
change, for realising is a change from ignorance to knowledge,
and burning to ash is a change from burning to not burning,
and from not ash to ash. Not all predicates describing change
need have endpoints. If "The stars move" is true then the
stars change position, but nothing is said about their
beginning or ceasing to move.

The general observation is that states have no essential
changes or transitions, from which it follows that they are
continuous and are not essentially bounded. To say that a
state is continuous and unchanging is not to say that the
state is in every way uniform throughout its duration. For
example, if John is asleep for an hour, at different times
throughout that hour he may be restless or motionless,
dreaming or not dreaming, but what holds continuously is that
he is asleep.

Taylor (1977) offers an account of the lack of progressives
with states by deriving a contradiction from the following
premises:

    States and only states are such that a given state holds

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at an interval iff it holds at every moment within that
interval. (In tense logical terms, a state sentence S
is true at an interval iff S is true at every moment
within that interval.)

Prog S is true at a moment iff S is not true at that
moment and there is an interval containing that moment
such that S is true at that interval.

In illustration, "John loves Mary" is true at an interval iff
"John loves Mary" is true at every moment of that interval,
and "John is walking" is true at a moment iff "John walks" is
false at that moment, but true at an interval containing it.
On these definitions a progressive state sentence has a truth-
condition which is a contradiction, stating that the
nonprogressive form S is both true and false at a given
moment; and thus progressive state sentences on Taylor's view
are false.

The result that a progressive state sentence such as "John is
loving Mary" is false runs counter to my intuition, which is
that the sentence is inappropriate or ill-formed in some way,
but not false.

Second, although the claim that states hold uniformly
throughout their duration is not contentious, the claim that

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the simple predicate appearing in the progressive does not
apply at moments contained in the event duration demands
further consideration.

The view that the truth of "John is walking" rests on the
falsity of "John walks" at contained moments is supported in
Taylor's paper by a discussion of the heterogeneity of actions
like walking, already mentioned in Chapter 2. Such small
subparts of a walking event as lifting and setting down the
feet are not themselves described as walking, nor
recogniseable as such in isolation. I agreed with Taylor's
decision that the apparent entailment "If John is walking then
John has walked" is not actually valid, but seems so because
the walking event must be in progress a little while for an
observer to confidently identify it and warrantably assert
"John is walking". The finding relevant above was this: "John
is walking" is not necessarily false at the onset of walking,
but seems so because the truth of the sentence at that time is
not verifiable by observation. But Taylor's conclusion on the
present point indicates that his intention was different. For
Taylor, at some medial point in a walking event at which "John
is walking" is true, it may be that "John has walked" is
false, on the grounds that the preceding event part, being not
identifiable in isolation as walking, nor described in
isolation by the predicate **walk**, was not actually walking.

Accordingly, at any instant within an event of John's walking
(or interval containing insufficient movements to identify
walking rather that dancing or hopping) "John walks" is false.

Part of the problem here is more clearly revealed by Dowty's
(1979:168) comments in support of Taylor's view. He writes:

> ..consider a segment of a motion picture film showing a
> ball rolling down an inclined plane. A single frame of
> this film does not in itself offer us the evidence to say
> that the ball is really in motion, assuming that the film
> does not show any blurs, but any two frames (adjacent or
> not) showing the ball in slightly different locations do
> provide evidence of movement. (Wittgenstein made a
> similar observation in his **Philosophical Investigations**
> (Wittgenstein (1958).) If we attempted to tie the truth
> conditions for basic predicates to physical properties
> represented in the model by "logical space" as we did in
> the previous chapter, then quite clearly the truth
> conditions for "motional" predicates of some sort would
> require access to information about the physical state of
> the world at at least two moments in time."

There is a danger here of confusing evidential phenomena with
truth conditions, with curious consequences. Consider the
following cases:

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A. A ball is sitting motionless on a tabletop, and I make
a short motion picture of the scene.

B. A ball rolls across a tabletop, and I make a motion
picture of the event.

Taking any single frame out of film A, I cannot tell whether
it is a shot of a moving ball or a stationary ball;
nevertheless the fact of the matter is that it is a shot of a
stationary ball. Similarly, no single frame of film B allows
me to judge whether it is a shot of a stationary ball or a
moving ball, but the fact is that it is a shot of a moving
ball. Dowty's example can be turned around to illustrate a
slightly different problem with our grounds for making
judgments. His examples suggest that a longer sequence of
film constitutes evidence of motion or the lack of motion,
because of the appearance presented to the observer, but of
course such evidence may deceive. Contrary to appearances,
the California Raisins do not dance.

I offer one further example. Assume that there are two
folksongs, "My love is a lily" and "The green fields of home"
which are sung to the same melody with a humming refrain
between verses. Obviously during the humming refrain an
observer cannot tell which song is being sung, from which it
follows on Dowty's view that "They sing 'My love is a lily'"
and "They sing 'The green fields of home'" are both false at

that time, and can only be true at an interval which contains the singing of some uniquely identifiable portion of the lyrics.

Surely this line of argument is mistaken. In the moment when a walker begins to raise his foot for the next step we cannot tell whether or not he is walking, but it is not necessary therefore to deny that he walks in that moment. This is not to assert that **walk** is true of such an action performed in isolation, and here I agree with Taylor and Dowty that the correct application of predicates true of complex patterns of actions must depend on the existence of the larger pattern. [1] Unlike Taylor and Dowty, I consider that an action such as a step which is performed as part of a walk is thereby an instance of walking. I reject the apparent consequence of Taylor's analysis that continuous situations described by progressive predicates at some stage of temporal division are suddenly suspended and cease to hold.

Finally, as the reader may have anticipated, Taylor's analysis predicts that all state predicates fail to take the

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[1]Here atelic predicates like **walk** differ from telic predicates like **draw a circle**, in that the progressive of telics may describe an event in which the whole larger pattern is not realised. That is, the truth of "John was walking" requires the existence of sufficient steps combined to constitute a walk, but the truth of "Mary was drawing a circle" does not require the existence of a complete circle-drawing.

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progressive, which is simply false in the light of examples such as (4).

(4)a.　Your slip is showing.

   b.　Kohl is hoping for an early unification settlement.

   c.　An old hunting horn was hanging on the wall.

   d.　The stars were shining brightly.

The data in (4) and (3), repeated here, show that the ill-formedness of (3) cannot be ascribed to a property of states per se, but must be due to a distinction between types of states or between state predicates.

(3)a. * John is owning a lot of land.

   b. * These books are costing $35.00.

   c. * That coat isn't belonging to me.

   d. * That cupboard is containing cleaning equipment.

Progressive State Predicates

The predicates in (4) are members of a fairly small class whose simple and progressive forms appear more or less synonymous; compare (4) and (5).

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(5)a. Your slip shows.

   b. Kohl hopes for an early unification settlement.

   c. An old hunting horn hung on the wall.

   d. The stars shone brightly.

More commonly, as discussed by Diver (1963:147-8), Dowty
(1979:173-80), Huddleston (1984:154), Langacker (1987:86),
Leech (1969:15-6,22-4), Palmer (1987:72), Scheffer (1975:38)
and Smith (1983:492-3), among others, the progressive of a
state predicate conveys that the state holds temporarily, as
shown in (6).

(6)a. The statue of Tom Paine stands at the corner of
       Kirkland and College.
   b. The statue of Tom Paine is standing at the corner of
       Kirkland and College.
   c. New Orleans lies at the mouth of the Mississippi.
   d. The socks are lying under the bed.
   e. We live in London.
   f. We are living in London.

When the described state may reasonably be either permanent or
temporary both forms are acceptable (6a/b,e/f), but where the
implied duration is unreasonable or atypical the sentence
expressing it is anomalous, as in Dowty's examples in (7).

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(7)a. ?? New Orleans is lying at the mouth of the Mississippi.

   b. ?? John's house is sitting at the top of a hill.

   c. ?? That argument is resting on an invalid assumption.

   d. ?? Your glass sits near the edge of the table.

   e. ?? The socks lie under the bed.

The oddness of (7a) lies in the permanence of the location of
cities, and of (7b) in the typical permanence of the location
of houses.   (7b) is acceptable in the context that John's
house is being moved on a trailer and is at present stranded
on a hill, but such a situation is uncommon.   (7c) is the most
anomalous because the assumptions which serve as premisses to
an argument are essential and therefore necessarily permanent
parts of the argument.   Similarly, the conveyed permanence of
the situations in (7d,e) is at odds with our expectations
about discarded socks and drinking glasses.

Dowty also illustrates that the temporariness conveyed by a
progressive state may be not of the state itself, but of its
relevance or immediate presentation, as in his examples in
(8).

(8)a. ? Two trees were standing in the field.

   b.   After the forest fire, only two trees were still
        standing.

I agree with Dowty's conclusion that the oddness of sentences like (7) and (8a) is pragmatic, and not to be attributed to illformed semantic representations or falsity. I concur with Dowty's view of these examples, which is that to assert a form implicating the limited duration of a state, the relative permanence of which is uncontentious, violates Grice's Maxim of Strength by saying less than is appropriate. The implicature of limited duration will be discussed below.

Habituals as States

Many writers have claimed that the habitual is a type of state, as Leech (1969:140) says: "the habitual present..describes a general state of affairs continuing through the present moment and consisting of repeated events."

As one might expect, the temporary vs. permanent distinction above is also found with habituals.

(9)a. I buy my shirts at Harrods.

  b. I am buying my shirts at Harrods.

  c. Mary works at Bellcore.

  d. Mary is working at Bellcore.

  e. John eats three meals a day.

f. John is eating three meals a day.

g. The engine is smoking a lot.

Here I point out the ambiguity of (9g) which was ignored in Chapter 2. (9g) may mean either that an instance of the engine's smoking badly is now in progress, or that there are currently many episodes of the engine smoking.

In my discussion of habituals in Chapter 2 I proposed that simple present tense habituals such as (10a,b) have their temporal range of application fixed pragmatically in the same way as the state predications in (10c,d). The temporal range of these predications is some vaguely bounded interval determined by the existence, or some substantial portion of the existence of the subject of predication.

(10)a. Mary works at Bellcore.

b. Mary paints in oils.

c. Mary is a busdriver.

d. The Hancock is a beautiful building.

In contrast, the predication of a progressive sentence is explicitly asserted to hold at least at a particular time which is separately specified, thus "Mary is reading the Globe" describes an event in progress at least at the time of utterance. This distinction was compared to Carlson's

proposal that progressive sentences are stage-level predications, in the terms of his analysis. I see what is common to the two approaches to be this: Carlson's individual-level predications are predicated of the whole individual, and correspond in my analysis to such cases as (10) where I claim that the temporal range is pragmatically fixed by the existence or part of the existence of the subject, while Carlson's stage-level predications are true of bounded stages of an individual, corresponding in my analysis to predications which are true of events independently dated or located in time; this independent dating fixes the stage or realisation of the individual which is for Carlson the subject of predication.

Along these lines, the expectation is that the progressive with a habitual as in (9b,d,f,g) is a dated predication, in contrast to the simple present tense habitual. The time range of present progressive habituals is commonly fixed by an interval adverbial, even though the denotation of such an adverbial may be vague, as in (11b).

(11)a. Mary is working at Bellcore this summer/till November.

b. I am buying my shirts at Harrods these days.

c. Mary works at Bellcore this summer/till November.

d. I buy my shirts at Harrods these days.

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These examples show that the temporal adverbial makes a slightly different contribution with the simple present tense. In contrast to (11a), which is ambiguous between the futurative progressive (see Chapter 1) and the reporting of a present situation, (11c) has saliently the futurative reading, and is not a straightforward present habitual. In (11b) and (11d) the adverbial is interpreted slightly differently, meaning roughly "at present" in (11b) but "from now on" in (11d). That is, the temporal adverbial does not give the range of the simple present habitual in (11d) which is still interpreted as a permanent situation.

It seems that a simple present tense habitual must have its temporal range fixed by pragmatic considerations involving the individual, and cannot be fixed by an independently stated time. If an interval adverbial modifies a simple present tense either the sentence is not interpreted as a habitual or the adverbial, where possible, is interpreted as compatible with permanence. Thus (12a) is odd if uttered near or at the end of the week, clashing with the "planned or programmed" futurative reading, and (12b,c) are slightly odd to the extent that the planned futurative reading is less typical for such events than it is for (12a).

(12)a.   Mary works at Bellcore this week.

    b.   John paints in oils this summer.

c. Mary has fun at the beach this week.

The progressive habitual, on the other hand, has its temporal range fixed by reference to times denoted by adverbials as in (11a,b) or determined by context, as with unmodified present progressive habituals, which are dated at the time of utterance.

I noted above that "John is walking" is analysed as meaning that a walking event by John is in progress at least at the time of utterance, but in fact we understand that the walking event must have greater duration, simply because walking occupies time; this understood greater duration of the event is contingently necessary because of the nature of walking, but not logically entailed.

The same consideration applies to a present progressive habitual, which although asserted to hold at least at the time of utterance, must in fact hold at a longer time. The question is, then, why does the progressive express temporariness or limited duration?

I suggest that the temporary or limited duration reading of a present progressive habitual arises by contrast with the simple present tense habitual, not because the former establishes the temporal limits and the latter does not, as

neither form semantically fixes exact temporal limits, but
because the latter pragmatically is interpreted as fixing the
maximal reasonable or expected limits which are the whole
existence of the subject of predication, or the portion of
existence of which the predication would reasonably hold; thus
the present progressive habitual is used for intervals which
are always briefer than and contained within the interval
determined by a simple present tense habitual. This is why
the progressive here conveys (by implicature) brevity of
duration. The contrast can be clarified with the implicature
carried by the bracketed modification in "John works at
Bellcore (at least at the moment)", where the modification
paraphrases the progressive semantics of "John is working at
Bellcore".

The approach can be extended to nonhabitual verbal state
predicates such as **sit, lie, rest,** etc, given that the simple
present tense with these predicates has the pragmatically
dated reading which I have compared to individual-level
predication. The resistance to independent dating shown above
for habituals also appears with these predicates as
illustrated below.

(13)a.   Today/these days the statue stands in the plaza.

   b.   Today/these days the caravan sits in the yard.

   c.   The car rests on blocks this week.

d.   The used buckets sit by the back door this week.

As above, the temporal adverbials in (13a,b) are interpreted

as "from now on", which is compatible with permanence, and are

not understood to limit the state to today or to a limited

period. (13c) is comparable to (12); just as in (12) the

"planned or programmed" futurative progressive is indicated,

in (13c) the futurative present tense is indicated, and (13c)

is understood as predicting a planned circumstance. In (13d)

the situation of the buckets sitting by the back door is less

likely to be fixed or planned, and the sentence is slightly

anomalous.

As for habituals, I claim here that the progressive

independently dates the state, and in contrast with the

pragmatically fixed, maximal probable duration of the state

described by a simple tense sentence, the dated state

described by a progressive sentence is implicated to be brief

or temporary.

The distinction between dated and nondated habituals which I

have compared in spirit to Carlson's distinction appears to be

confined to the present tense. In Chapter 2 the framing

semantics claimed for the progressive was illustrated by the

contrast between examples such as (14a,b), in which (14a) but

not (14b) is claimed to assert the event occurred at least at

the stated time.

(14)a. John was playing the piano from ten to eleven.

   b. John played the piano from ten to eleven.

This type of contrast cannot be appealed to for present tense habituals because, as above, simple present tense habituals do not take temporal modification of the relevant kind. However, simple past tense habituals do not have this property and in the past tense the framing semantics contrast can be demonstrated, as below.

(15)a. Mary worked at Bellcore in 1989.

   b. Mary was working at Bellcore in 1989.

   c. John ate a lot of cheese last summer.

   d. John was eating a lot of cheese last summer.

In each case the temporal adverbial is understood to give the whole duration of a situation described by a simple past predicate, but carries the "at least then" interpretation with a progressive. The same point is noted for state predicates as in (16).

(16)a. John was living in London that term.

   b. John lived in London that term.

c. The portrait was hanging on that wall during the banquet.

d. The portrait hung on that wall during the banquet.

This indicates that the progressive with states (including habituals) does indeed have the semantics proposed in Chapter 2. Traditional accounts have not given this view, suggesting instead that the progressive both adds duration in "Mary was reading the paper when I arrived" and limits duration in "The statue is standing in the plaza", leading to some confusion.

Formal Statements

Having claimed that the temporary progressive here is an instance of the temporal frame progressive, I take as my starting point the definition for the progressive from Chapter 2.

I introduce a variable s to range over states. For many writers the Davidsonian variable e ranges over what Bach (1981) has dubbed "eventualities", including his states, events (telic) and processes (atelic). I agree that there is a general class consisting of states, events, and processes, and accordingly my distinction between e and s is a notational

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convenience, which I hope will make the representations clearer; where e ranges over eventualities, the values of s are a subset of the values of e. In my formulae the variables e and s are used to distinguish events and states, both of which are eventualities.

An individual-level or undated predication is represented as in (17).

(17)a. Mary is tall.

b. Es[tall(s) & Theme(m,s)][2]

A temporary state with a time adverbial is represented as in (18).

_____

[2]I note here that I have no idea what thematic role **tall** assigns to **Mary**, if any. Although the role of Theme is well-defined as the undergoer of change or movement in "The ice melted" or "A tree fell", for many predicates, as in (17b), it serves as the Elsewhere role, holding a place for roles which have not been plausibly analysed. Although I disagree with the division drawn in Dowty (1989) between the domains of what he calls "Ordered-Argument" representations, which are in traditional predicate calculus form as in (i), and "Thematic Roles" representations which are Neo-Davidsonian as in (ii), I suspect he is right that some predications have no roles, and perhaps (17b) should be something like (iii).

(i)   P(x,y,z)
(ii)   Ee[P(e) & R(x,e) & R'(y,e) & R''(z,e)]
(iii) [tall(m,s)]

The difference is immaterial for the present purpose.

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(18)   John is living in London this summer.

       [Qt:t = ‖this summer‖] (Es[[at(s,t] v [Et'[t is a proper

       subset of t' & at(s,t')]] & live in London(s) &

       Theme(j,s)])

In Chapter 2 I represented simple tense habituals as bare
existential quantification over events, but this must be
modified here to allow for the temporal location of the state
described by a progressive habitual. Accordingly, I shall
represent the habitual reading of an event predicate by
substitution of the s variable for the e variable, as in
(19b).

(19)a.   Mary works at Bellcore.

    b.   Es(work at Bellcore(s) & Agent(m,s))

A predicate true of events, predicated of a state, is to be
understood as true of a series of events of the indicated kind
constituting the state of affairs which is the value of s. A
habitual state holding at an interval consists of certain
events falling within that interval, and the following
entailment always holds.

(20)   Where P is a predicate true of events,

       If EIEs(at(s,I) & P(s)) then EtEe(t is a subset of I &

       at(e,t) & P(e))

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By using a conditional in (20) I have claimed that the existence of events is a necessary condition for the existence of the corresponding habitual state, but not that it is a sufficient condition. The converse of (20) shown in (21) gives the incorrect result that a habitual state can hold at arbitrarily large intervals containing the corresponding event or events.

(21)   If EIEtEe(t is a subset of I & at(e,t) & P(e) then

       Es(at(s,I) & P(s))

I leave (20) as a conditional, and cannot offer an explicit definition of habitual states; this leaves the condition in (20) as a meaning postulate.

The habitual states, progressive and nonprogressive, will be represented as illustrated below.

(22)a.   Mary works at Bellcore.

   b.   Mary is working at Bellcore this summer.

   a'   Es[work at Bellcore(s) & Agent(m,s)]]

   b'   [Qt:t = ‖this summer‖] (Es[[at(s,t)] v [Et'[t is a

        proper subset of t' & at(s,t')]] & work at Bellcore(s)

        & Agent(m,s)])

I have argued so far that it is false to claim that all state predicates resist the progressive, and have given an account of the implicature of temporariness found with present progressive states, including habituals. I have also shown that the progressive with state predicates has the temporal frame semantics.

As the discussion now stands, the analysis appears to predict that any state which may be temporary can appear in the progressive, which is obviously false. In this section I discuss some of the difficulties with state predicates which do not straightforwardly take the progressive. I consider these predicates in three main classes which I shall call the BE class, the HAVE class, and the psychological states.

The BE Class

As expected, the paradigm member of this class is the copula **be**, which never takes the progressive, unlike so-called Agentive **be** discussed above. I cannot explain why copula **be** should resist the progressive, especially if we accept the view that it has no semantic content, predicates with **be** taking all their content from the complement to **be**. All I wish to do here is argue that certain other predicates resist

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the progressive because they are types of copula, and thus the stativity of **be**, whatever it stems from, is of the same kind as the stativity of these other verbs.

The first verbs in this class are **cost** and **weigh**.

(23)a. John weighs 200 pounds.

   b. That book costs $25.

These sentences can be paraphrased with **be**, with or without the additional specification of the property modified, as below.

(24)a. John is 200 pounds.

   b. John's weight is 200 pounds.

   c. John is 200 pounds in weight.

   d. That book is $25.

   e. The cost/price of that book is $25.

   f. That book is $25 in price.

Similar paraphrases can be found with **measure**.

(25)a. The table is four feet.

   b. The table measures four feet.

   c. The table is four feet wide/long.

   d. The table is four feet in width/length.

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e. The width/length of the table is four feet.

I suggest that the forms with **be** (24a,d) and (25a) are the most basic, and that the property denoted by the predicate is predicated directly of the subject; the **be** forms are less frequent because for these cases a restricted copula which specifies the aspect of the individual to be modified is available.

When we predicate properties of an individual, different types of property "select" different aspects or guises of the individual, as in (26). In (26a) John is presented as a physical object, in (26b) as a personality, and in (26c) as a bearer of a social role. These aspects or guises of the subject can be made explicit as in (26d-f).

(26)a. John is short and dark.

　　b. John is easy-going.

　　c. John is a tax collector.

　　d. John is short and dark in appearance.

　　e. John is easy-going by nature/in personality.

　　f. John is a tax collector by profession.

I claim here that verbs like **cost** and **weigh** are copulas, with an added restriction on the kind of property they take as complement, unlike **be** which is unrestricted.

A second group of verbs in this class illustrated below express relations which can be paraphrased by **be-PP** sentences.

(27)a. The moat surrounds the castle.

   b. The moat is around the castle.

   c. The woodshed adjoins the workshop.

   d. The woodshed is beside the workshop.

   e. Bill resembles his father.

   f. Bill is like his father.

Verbs in this class can be described as copulas which "incorporate" a preposition, just as **enter** can be described as underlying GO incorporating the preposition INTO; (see Gruber (1965)). A third group is shown in (28).

(28)a. The committee comprises Miss Ashley, Mr Beagle and Dr Fell.

   b. The army numbers some 50,000 troups.

   c. The mixture in the bottle consists of three parts water to one part mercurochrome.

Again, these predications are all roughly paraphraseable with **be**. The subject noun phrase names a group or combination of individuals or elements listed in the predicate; there is a sense in which a group or combination is merely the sum of its

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parts, and in this sense the examples in (28) resemble identity predications.

The HAVE Class

The English verb **have** has an enormous range of uses, but here I focus on a class which I shall compare to copular constructions. Consider first (29).

(29)a.   Ruritania has many mountains.

   b.   Ruritania has many mountains in the east.

   c.   The coat has buttons.

   d.   The coat has buttons on the side.

   e.   There are many mountains in Ruritania.

   f.   There are many mountains in the east of Ruritania/in the east in Ruritania.

   g.   There are buttons on the coat.

   h.   There are buttons on the coat on the side/on the side of the coat.

The first point is that (29a-d) are roughly paraphraseable as (29e-h), and one is tempted to assign the existential assertion to **have**, especially in light of the presentational use of analogs of **have** in other languages, such as French il y

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a and Mandarin **you**, translated by English "There is". But if the existential assertion, made explicit as "There is/are" in the paraphrases, is attributed to existential quantification in the noun phrase (or perhaps by existential closure in the case of bare plurals), the contribution of **have** can be seen as copular, in the paraphrases below.

(30)a. There are many mountains which are in Ruritania.

    b. There are many mountains which are in the east in Ruritania.

    c. There are buttons which are on the coat.

    d. There are buttons which are on the coat on the side.

If the existential assertion is attributed to quantification and **have** seen as merely copular, the nearest paraphrases for (29a-d) are (31).

(31)a. Many mountains are in Ruritania.

    b. Many mountains are in the east in Ruritania.

    c. Buttons are on the coat.

    d. Buttons are on the coat on the side.

On this reduction, these examples are of the same kind as (32) below, with the chief difference being that in (32) but not in (31) the modified part is presupposed to exist.

(32)a. Mary has red hair.

    b. John has a rasping voice.

    c. Mary's hair is red.

    d. John's voice is rasping.

Now if "The coat has buttons" is paraphrased as "Buttons are
on the coat", the sentence is not anomalous because it is not
presupposed that buttons are on the coat, but the same cannot
apply to examples like (32a,b), where the existence of hair
and voice are presupposed; (33a,b) are like the minimalist
greeting "Have a day".

(33)a. # Mary has hair.

    b. # John has a voice.

    c. # Hair is on/part of Mary.

    d. # A voice is part of John.

In all these sentences I suggest that "X-HAVE-Y" means "Y-BE-
PREP-X", where PREP is some relation often, but not always,
realiseable as a preposition (in Ruritania, on the coat), and
BE is just the copula. That is, the basic structure of these
uses of **have** may be described as the converse of the structure
of verbs such as **adjoin** above for which "X-VERB-Y" is analysed
as "X-BE-PREP-Y". With **have** the abstract PREP does not always
correspond to an existing preposition but is one of the
abstract relations realiseable by the English possessive or

of, as in "Ruritania's mountains", "the mountains of Ruritania", "Mary's hair", etc. If what is asserted by "X-HAVE-Y" meaning "Y-BE-PREP-X" is presupposed, an additional predication must be expressed; this applies not only to cases like (32) but also in (34) below.

(34)a. # The coat has the/its buttons.

   b.   The coat has the/its buttons on the side.

Assuming that this use of **have** is the converse of BE-PREP, and recalling that BE-PREP was claimed to be the basis of such verbs as **surround** (= "be around"), we might expect to find other verbs which are underlyingly the converse of BE-PREP, and I suggest this is illustrated in (35).

(35)a.   The box contains my books and pens.

   b.   The table held papers and a basket of fruit.

   c.   My books and pens are in the box.

   d.   Papers and a basket of fruit were on the table.

These **senses** of **contain** and **hold** are distinct from the "retain" reading in "The fences were barely containing the crowd" and "This unit is holding too much water".

Finally, I note that **own** and its converse **belong to**, which are also stative, cannot in English be paraphrased with **be** and a

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preposition, but are paraphraseable with **be** and possessive case, semantically very closely related to the use of **have** discussed here; the difference between the presuppositions attendant on definite and indefinite descriptions also shows up here, further indicating that **have** in (29) is not existential.

(36)a. John owns that car.

    b. That car is John's.

    c. That car belongs to John.

    d. John owns a car.

    e. There is a car which is John's.

The aim of this discussion has been to show that all the predicates discussed here are of the same semantic character, which I term copular. I have used paraphrase relations in an attempt to illustrate the semantic intuition, but I do not intend the paraphrases to be understood as lexical decomposition analyses; that it, I do not consider that **surround**, for example, has the underlying structure [ᵥₚ [ᵥbe][ₚaround]] in the lexicon. It may be that some kind of conceptual decomposition applies here, as in assigning to **surround** the content [BE AROUND], with the proviso that symbols such as [AROUND] are intended to have mnemonic convenience, but are not claimed to be exactly the content assigned to the lexical item after which they are named. This

point is familiar in connection with other proposed abstract predicates such as CAUSE, which is not claimed to be lexicalisable in all its occurrences as **cause**. A full consideration of the latter approach is beyond the scope of this work, but see Jackendoff (1983) for a theory of concepts of the kind which might be employed. In a conceptual decomposition theory I suggest that the predicates I term copular would be those whose conceptual structure is headed by [BE], the canonical case being **be** itself.

I cannot offer any explanation of the resistance of copular predicates to the progressive, but I suggest it is related to the fact that these predicates also cannot occur as complements to the aspectual verbs **start, begin, continue,** etc. For example, if I place some books in a box at three o'clock, the state of the box containing the books begins to hold at three o'clock, but "The box began/started to contain the books (at three o'clock)" is nevertheless ill-formed. Similarly, even if the books are still in the box a while later "The box continued to contain the books" is also ill-formed. In short, it seems that we have here a class of predicates which resist the progressive and certain other aspectual constructions for unknown reasons, which seem not to concern the times at which the states in question can hold, and accordingly it seems the stativity of these predicates cannot be explained by appealing to the semantics for the

progressive proposed here.

The Psychological States

I turn now to predicates of psychological states, and here I shall attempt to show that the progressive describes a state which is not only a temporary episode, but also is or is presented as a consciously experienced state. I begin with the examples in (37).

(37)a. I loathe Henry James.

   b. John adores Dufy.

   c. We enjoy the local theatre.

   d. I'm loathing this book.

   e. Sally said she was adoring the new apartment.

   f. Are you really enjoying that pie?

States of loathing, adoring, enjoying etc. are states of consciously experienced pleasure or displeasure, and the active arousal of such emotional states generally coincides with the experience to which the emotion is a response. The progressives in (37d-f) are true of such episodes in progress, and the simple tenses in (37a-c) can be seen as habitual or dispositional in their temporal properties; for example, I may

be feeling no displeasure at the time of uttering (37a), which
means roughly that I experience loathing when I read Henry
James.

If I am reading "Portrait of a Lady" and someone asks "How do
you like it?", I may say "I loathe it", but even though an
episode of loathing is in progress at the time of utterance
the simple tense has a habitual reading; the fact that it is
said during a loathing episode is coincidental. If the
experience which arouses the emotional response is unique, so
that a habitual predication would be anomalous on the grounds
that the experience cannot be repeated, the progressive is
required.

(38)a.   I'm really loathing this weekend.

   b.   I'm enjoying this party.

   c. # I loathe this weekend.

   d. # I enjoy this party.

These predicates are like activity predicates such as **walk** and
play the piano in their simple present and progressive forms,
and accordingly writers who take properties like these as
criterial for classification of predicates may classify
loathe, adore, etc. as mental activities, or dynamic rather
than static mental states. I am sympathetic to this view, but
I think it needs to be pushed a little further to be helpful

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as an insight on the progressive; that is, I believe that
verbs like these have the simple tense and progressive forms
as illustrated above not merely because the mental states in
question are in some sense active or dynamic, but because
being active or dynamic they are also perceived as episodic,
and their episodic nature underlies the dated or temporally
located progressive readings. There is a distinction between
mental activity habituals and physical activity habituals
which I wish to draw on below, shown in (39).

(39)a. I walk to work.

   b. I loathe Henry James.

I have said that both predications in (39) are true if there
are events or episodes of walking to work or experiencing
loathing while reading Henry James, but there is a strong
intuition that there is a permanent part of my cognitive
structure which encodes my disposition to loathe Henry James,
while no similar part of my cognitive structure encodes my
habit of walking to work; thus where (39b) is true, although I
need not be having a loathing episode at the time, I am in
some mental state which is my disposition to do so. This
point will be relevant below.

As expected, these verbs also take the temporary habitual
progressive as shown below, and perhaps (37e) also belongs

here.

(40)a. John was enjoying his work that year.

    b. I'm hating all these reorganisations in the office.

    c. Are you enjoying the lectures?

Consider next the examples in (41).

(41)a. I see something by the door.

    b. Listen! I hear voices.

    c. Do you smell smoke?

    d. I'm finally seeing Venice with my own eyes!

    e. I can't believe I'm hearing this.

Perceptions such as seeing and hearing are always conscious experiences, but the experiential nature of the state is emphasised by the progressive. In (41a-c) the main import of the utterance is not the perceptual experience but the thing perceived, and the utterances below might be appropriate in the same circumstances as (41a-c).

(42)a. There's something by the door.

    b. There are voices upstairs.

    c. Is there smoke coming from somewhere?

In (41d,e) on the other hand the experience of the perceiver

is emphasised, and that which is perceived is presupposed.
The emphasis on experience with the progressive also underlies
the contrast in (43), where (43b) strongly suggests that I am
hallucinating.

(43)a. I hear voices.

   b. I'm hearing voices.

   c. Listen! I hear voices!

   d. Listen! I am hearing voices!

Note that (43c) urges the hearer to listen to the voices,
while (43d) is a demand for the hearer's attention to the
speaker. I offer one further illustration of the experiential
emphasis. Severe grand mal epilepsy has occasionally been
treated by surgical destruction of the dysfunctional area of
the cortex which initiates seizures. To isolate this area,
and to avoid destroying vital functions in the cortex, an
exploratory procedure is first performed in which the
patient's cortical functions are mapped. The brain is exposed
under local anaesthesia and small areas of the cortex are
electrically stimulated, while the conscious patient reports
the result. Memories and sensations are activated, giving
rise to reports such as those in (44). The experiences are
all hallucinatory, and the simple present tense is anomalous
for such reports.

(44)a. I'm tasting butter.

  b. I'm seeing my dog by the door of our old house.

  c. I'm hearing a girl I went to school with laughing.

The main difference between verbs like **loathe** and verbs like **see** is that the simple present tense of **loathe**, I claim, is really habitual in interpretation, while the simple present tense of **see** reports a present experience, although the experiential aspect is not emphasised. The simple present tense of perceptual verbs also has the habitual reading, for both senses.

(45)a. I see the mountains from here on a clear day.

  b. We hear the air traffic at night.

  c. I don't hear high-pitched voices very well.

  d. Take no notice of John, he sees things.

  e. Do you hear these voices during the day, Mr Morton?

Consider now **believe** and **know**, which are stative in most contexts.

(46)a. # John is believing that it will be a harsh winter.

  b. # John is knowing that we want to buy him out.

Here I appeal to the distinction drawn above between consciously experienced episodes of liking and loathing, and

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the underlying mental states which are the dispositions to have such episodes. I suggest that believing and knowing do not have this two-way distinction, in that there simply are no consciously experienced episodes which <u>are</u> believing and knowing. In a comparison with the distinction drawn for **loathe**, belief and knowledge correspond only to the underlying stable mental contents, not to episodes of mental activity. Although a discussion of the extensive philosophical literature is beyond the scope of this work, I note that belief and knowledge have been considered as dispositions to demonstrate certain kinds of behaviour, or at least the occurrence of such behaviour has been discussed as evidence for knowledge and beliefs. So for example, the disposition to assent when asked "Is the earth round?" may be evidence that the one who assents knows or believes that the earth is round. We might also say that if a person reasons through a problem and reaches a conclusion which requires as a premise that the earth is round, this demonstrates that he believes or knows that the earth is round, because his reasoning seems to appeal to that knowledge or belief. The point I wish to make here is that <u>no</u> episode of overt or mental activity which seems to demonstrate the presence of certain knowledge or beliefs actually constitutes an episode of knowing or believing; here these states differ from loathings and likings, in that there the proposed underlying state is a disposition to have episodes which <u>are</u> loathing and liking.

Know and **believe** are stative with complements of the form **that**
S or **the answer/what John did**, where the complement fixes the
content of knowledge or belief as the sense of a proposition.
If a sentence describes multiple beliefs or "contents" of
knowledge, the progressive is possible on a habitual-like
reading, as in (47).

(47)   John is knowing the answer more and more often.

Here John knows a different answer on each occasion, and he
has an increasing stock of underlying states of which we could
say "John knows that p", "John knows that q", "John knows that
r", etc.   John has a number of different underlying states,
not multiple instantiations of the same state.   As is commonly
observed, **more and more** also appears with the progressive of
other verbs which are generally stative, as in (48), for the
same reason; a number of distinct states hold, rather than
multiple instances of the same state.

(48)a.   John is resembling his father more and more.

 b.   These examples are seeming less and less unacceptable
    to me.

"Propositional content" verbs also take the progressive where
a series of individual contents is involved in examples like
(49).

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(49)a. I'm not believing a word of this.

   b. I'm understanding about half of it without the
       subtitles.

In short, states of believing or knowing that p are always

underlying or dispositional, and as such are not perceived as

episodic, even though they can obviously be temporary. The

progressive, then, can never be used to describe a current

episode of a particular belief or content of knowledge, simply

because there are no such episodes of the required

experiential kind. Only where there are multiple distinct

underlying or dispositional states can a progressive habitual

be used.

I note here that the emotional attitude verbs above also have

a propositional complement use comparable to **believe** and **know**,

with the expected stativity.

(50)a. I hate it that John always gets the best assignment.

   b.# I'm hating it that John always gets the best
       assignment.

Although on each occasion where John is given the best

assignment I may have an episode of experiencing displeasure,

this is not an episode of hating the state of affairs that

John always gets the best assignment, which I believe is not episodic.

The distinction between experiential episodes and underlying stable states is less clear with verbs such as **hope** and **expect** as illustrated below, for which the simple present and progressive forms are often held to be more or less synonymous.

(51)a.　Kohl hopes/is hoping for an early unification
　　　　agreement.

　b.　I expect/am expecting John to call me.

　c.　We don't anticipate/aren't anticipating any problems
　　　with this equipment.

Nevertheless, I think the contrast between a habitual and episode-in-progress reading can be demonstrated as in (52).

(52)a.　A. What are you thinking about?

　　　　B. I'm just hoping the speeches will be short.

　　　　? I hope the speeches will be short.

　b.　When I spoke to John he was expecting a long-distance
　　　call/ ? he expected a long-distance call.

　c.　When I spoke to John he was anticipating trouble/? he
　　　anticipated trouble.

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Here I note that although there is a use of **think that S** which is compared to **believe that S**, I consider the progressive to have a slightly different reading, as in "I'm thinking we should get out of here", which rather than meaning "I currently have the thought or belief that we should get out of here" means "I am forming the thought or belief", just as "I'm having an idea" means "I'm getting an idea" or "An idea is coming to me". These inchoative readings involving change are not states according to the characteristics of states discussed above.

With all of the psychological state verbs discussed here except the **see** class I claim that the progressive can be used only for states which are experienced in episodes, or as with **more and more** modification, if a series of distinct dispositional states is involved, rather than repeated instances or episodes of the same state. I also consider that with all these verbs the simple present tense has a habitual reading, and the view that the simple tense actually describes a current episode, which for example underlies the apparent synonymy of the pairs in (45), arises from the strong intuition that habitual psychological states, unlike the habituals of physical actions, stem from a disposition which is in a sense a constant underlying mental state, or part of an individual's cognitive structure. In this sense "I loathe

Henry James" is true of a mental state I am now in, where "I walk to work" is not.

The case with perception verbs such as **see** is different, as sentences such as "I see something by the door" are true of current experiences, and not obviously habitual. However, it is worth noting here that Vendler's comment on the occasional interchangeability of the pairs below is suggestive of some dispositional predication, even with the perception verbs, perhaps because perceptual experiences also arise by the functioning of our constant cognitive structure in a way that mere habits do not.

(53)a. I see something by the door.

    b. I can see something by the door.

    c. I hear voices.

    d. I can hear voices.

    e. Do you smell smoke?

    f. Can you smell smoke?

The general finding here is that although progressives of psychological states are dated or temporally located and of limited duration, such temporal limitation is not sufficient for the use of the progressive, which also requires the state to be experiential. I suggest that this is because of psychological states, only those perceived as consciously

experienced are sufficiently episodic to be expressed by the progressive. With the perception verbs, the progressive is used to emphasise the experiential nature of the state, which is also temporally located. I have argued that predicates such as **believe** and **know** are stative because beliefs and knowledge are never instantiated as such in consciously experienced episodes.

Before concluding this discussion of state predicates, I make a few speculative remarks about participial adjuncts.

Participial Adjuncts

The adjuncts I am concerned with include those given below.

(54)a. There was a man standing by the fire.

  b. Mary sat by the window reading.

  c. John came in the door yelling his head off.

The first point to note about these adjuncts is that the action described is understood as concurrent with some other time or event. In (54a) the man is standing by the fire at the time of his introduction into the story, in (54b) Mary was reading while she sat by the fire, and in (54c) John was yelling his head off when he came in the door. Clearly these

readings are easily accounted for if the adjunct is analysed
as a nonfinite progressive with the usual temporal frame
semantics.

Participial adjuncts can express more than mere temporal
overlap as in the examples below.

(55)a. Hacking the new growth away with a machete, Mary
         cleared the path.
   b.   Flipping the switch and flooding the room with light,
         John alerted the prowler.

In these examples the action described in the main clause is
achieved by means of the actions described in the adjunct, and
is also cotemporaneous with them. This "thereby" reading is
also apparent with the progressive in (56a), in contrast to
(56b).

(56)a. If I married you I should be deceiving you. (thereby)
   b.   If I married you I should deceive you. (thereafter)

I consider these additional elements of meaning to be
polysemous extensions of the temporal overlap or framing
reading found in (54) and in the basic progressive, and that
the participial adjuncts should indeed be analysed as
nonfinite progressives. I note that the temporal conjunctives

as and **while** also have extended uses which include the temporal overlap reading, as illustrated below.

(57)a.　As John is away, Mary is watching all the videos he

doesn't like.

b.　As you are here, we might as well do this report.

c.　While I know that no harm was intended, I must insist

that the damage be paid for.

In these examples "As A, B" means roughly "B because A" and "While A, B" means roughly "B despite A", in addition to the temporal overlap or simultaneity expressed; in these examples the state or situation described by the main clause holds at the same time as that described by the subordinate clause.

In short, predications of temporal overlap have various extended readings which may be analysed as polysemous extensions of their basic temporal semantics.

Assuming then that these participial adjuncts, expressing a temporal overlap which can be accounted for by the temporal frame semantics, are in fact progressives, note that predicates otherwise considered to be absolutely stative can appear in such adjuncts.

(58)a. Having left before the match, John was home to watch
        the second half.

     b. Knowing that Mary had left, John locked up and went to
         bed.

     c. Being a doctor, Mary didn't believe a word of the
         evidence.

     d. Resembling his father so strongly, John is constantly
         recognised.

In all these examples the participial adjunct expresses not
only the simultaneity of the state of affairs described by the
adjunct with the situation or event described by the main
clause, but also the "because" reading demonstrated with as in
(57). Recalling Dowty's argument that the progressive is used
to describe a state which is permanent but of temporary
relevance or presentation, as in the example here,

(59) When you come off the highway an old church will be
      standing on your left and the pond will be lying
      directly ahead.

I suggest that the progressive adjuncts in (58) are of the
same kind, in that no temporariness or current episodic nature
is attributed to the states themselves, but their causal
relevance to the events at hand is presented as temporary.

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If I am correct in identifying participial adjuncts as progressives, this evidence indicates that the ill-formedness of "John is being tall" or "Mary is having red hair" should not be attributed to the syntactic or semantic ill-formedness of progressive forms of certain predicates. Such an approach must identify certain predicates as stative, but if this evidence is correct there are in fact no stative predicates. In earlier discussion the opposite conclusion has been favoured, and examples like (58) have been accepted as evidence that participials are not derived from the progressive. Here I consider that the evidence favouring a progressive analysis of participials is more persuasive than the assumption that predicates which resist the progressive in given environments therefore resist the progressive in all environments. I tentatively conclude that there are no fully stative predicates, where statives are defined as those which do not take the progressive.

Summary: State Predicates

The main point I have argued for here is that not all state predicates resist the progressive, and thus any explanation of statitivity which appeals to the nature of states per se is incorrect.

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I have also reviewed the familiar observation that the progressive of state predicates, including habituals, is interpreted as describing temporary states. I have attributed this reading to an implicature arising from the contrast with simple tense verbal predicates of states, which are interpreted as individual-level predications, or in my terms, as holding at vaguely bounded intervals, pragmatically determined as the "maximal reasonable" times at which the state of affairs in question might hold; this interval is usually some considerable proportion of the time of exostence of the subject of predication. A state described by a progressive, independently dated by location at least at a given time, is interpreted as holding at a time distinct from the maximal reasonable time, which is therefore held to be briefer than the maximal time, and of limited duration.

The same implicature can be observed with adverbial dating of states, as in (60).

(60)a. Mary is tall now.

b. Mary is tall right now/at the moment.

If Mary is tall then both (60a,b) are true, but both sound odd. If Mary is a teenager (60a) is appropriate understood as "Mary has become tall and is tall from now on", but **right now** or **at the moment** don't allow the loose "from now on"

interpretation; (60b) is odd because it implicates that Mary's

tallness is temporary. As noted above, (60b) is much worse

than "Alice is tall right now", because Alice's tallness was

indeed temporary. Although the state described by a present

tense state sentence must hold at the time of utterance, it is

not explicitly dated. In (60b), however, right now/at the

moment explicitly date the state at the present moment, just

as the present progressive dates the state at the time of

utterance, with the same implicature.

 Having argued that the limited duration reading arises from

the basic temporal frame semantics for the progressive

proposed in Chapter 2, I discussed two types of state

predicates which resist the progressive in ways which cannot

receive a purely temporal explanation.

I argued that predicates of the first type form a semantic

class which I term copular, the canonical member of this class

being be. I suggested that verbs in this class resist the

progressive for the same reason as they resist appearing as

complements to start, begin, continue, etc, but I cannot offer

any explanation for this. These verbs are the best examples

of absolutely stative verbs, although as I noted in the brief

discussion of participial adjuncts, there is evidence that

even copular verbs may have progressive forms.

Finally, I discussed predicates of psychological states, and

argued that although the progressive with these verbs also expresses the limited duration and temporal locatedness found with other progressive state predicates, these temporal properties are not sufficient for the use of the progressive. Psychological state predicates appear in the progressive only if the state described is consciously experienced, and I suggested that this may be because only consciously experienced psychological states are considered to be sufficiently episodic to be temporally located in the relevant way.

In conclusion, although additional restrictions on the use of the progressive apply with various classes of verbs, I claim that where the progressive does appear it has the temporal frame semantics proposed here.

Achievement Predicates

Sentences such as (1d), repeated below, and the additional examples in (61) apparently indicate that achievement predicates resist the progressive.

(1d) ? John is noticing the hole in the floor.
(61)a.? She is recognising the one with the moustache.

b.? He's spotting the car.

The old traditional view, that the progressive established an
event as temporally framing some reference time required that
the event described by the progressive have some duration
greater than an instant, for the obvious reason that only an
event time longer than an instant can properly contain or
surround the framed time. This view offers a simple
explanation for the data above; noticings and recognisings
are classed as punctual events and cannot be temporally
extended to surround a framed time. In other words, the
progressive can only apply to predicates true of events which
take time.

This explanation is not available on the present analysis,
because, as I argued in Chapter 2, the existence of an event
having duration greater than the framed time is not entailed;
the progressive only locates an event at least at the framed
time, and in some cases the event is at the framed time.

The temporal frame reading is strongest with point adverbials
and the present progressive, where the framed time is a
moment, because predicates such as **walk** (found in the most
commonly considered examples) are true of durative events.
Nevertheless, the present progressive can be used to report a
momentary event which occurs at the time of utterance, as I

illustrated with the example of John touching the desk in the videotape thriller (Chapter 2). The example "He's touching it" and the accompanying scenario may seem highly contrived, but I believe there is a good practical reason for this.

The time of uttering "He's touching it" fixes t*, and the sentence asserts that the touching event at or around t*. Given that the event is momentary it cannot occur around t* and must occur at t*. So to place t* in such a way that it coincides with the event the speaker must time his utterance very carefully, and unless he is ready and knows when the event will occur this is difficult to do. The anecdote involves rewinding previously seen tape because for practical reasons the speaker must be familiar enough with the events unfolding to accurately time his utterance. Without such anticipation, by the time we observe and identify an unexpected momentary event and organise our speech enough to pass comment, the event is over and we must use the past tense. Even a very quick observer of the taped scene in the anecdote, watching it for the first time, will probably so slowly that he must say "He touched it". I believe the same argument applies to the sentences above in (1d) and (61).

The present progressive is usually used to report events which surround the utterance time in such a way that exactly timing the utterance is not important. The extra anecdotal support

for present progressives of punctual event predicates is required only to show that the utterance can be made at a time at which it is true, and the extra difficulty follows directly from the semantics proposed for these sentences. All the examples in (1d) and (61) are well-formed and appropriate if uttered with exact timing, as in the videotape scenario.

In short, the progressive of achievement predicates is well-formed, but difficult to utter truly.

CHAPTER 4

DEFINITE AND INDEFINITE TIMES

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Introduction

There is a traditional distinction between definite and
indefinite times denoted by verb forms, according to which, as
I shall illustrate below, we have at least the following
three-way distinction:

(i)   The (present) perfect is indefinite

(ii) The progressive is definite

(iii) The simple past is either definite or indefinite in
different contexts.

THE SIMPLE PAST

Partee (1984) gives a full discussion and analysis of a point
often noted in traditional grammars but overlooked in modern
tense logics. A standard tense logical account of (1a) says
that (1a) is true iff there is a time earlier than t* at which
"I leave the door open" is true, according to the general rule
in (1b).

(1)a. I left the door open.

 b. (Past S) is true iff Et(t < t* & S is true at t)

Partee notes that on this account any earlier occasion at all of my leaving the door open suffices for the truth of (1a), but in fact (1a) is true of a specific occasion of my leaving the door open. The problem is clearer with a negative sentence such as (2).

(2) I didn't turn off the stove.

Applying negation to the standard tense logical truth condition, (2) is claimed to be true iff there is no past time at which I turned off the stove, giving (2) the reading "I have never turned off the stove", or, giving negation narrower scope than the existential binding over times, iff there is some time or other at which I didn't turn off the stove, which is irrelevantly true in virtue of all the times prior to my birth. But clearly, Partee argues, (2) means that I didn't turn off the stove at or during some particular time, even though I may have done so on many other occasions.

Burge (1974) makes a similar point, criticising the general neglect of "the demonstrative element in tensed sentences" among tense logicians. Burge argues that the response "He was tired" to the question "Why didn't John join the soccer game?" is false if John was not tired at the time of the game, even though he may have been tired at some other time; in effect,

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Burge claims that "He was tired" asserts "He was tired then", with **then** a demonstrative element assigned the time of the game as its value.

Partee argues that the past tense is anaphoric in the same way as pronouns, with antecedents provided by general context, preceding discourse or an expression in the same sentence, as in (3).

(3)a. I left the door open.

   b. He's fussy but he's a big tipper.

   c. What did you do after dinner?

      I watched the news.

   d. Why isn't John here?

      He's in New York.

   e. At three o'clock Mary called out for pizza.

   f. John told us he would bring the extra film.

In (3a) the time at which I left the door open may be understood from context without being mentioned. For example, if I have just walked out of my office and in the corridor I meet a friend who wants to borrow a book from my office, by (3a) I mean that I left the door of my office open when I came out a moment ago. The pronoun **he** in (3b) may also be interpreted from context, perhaps when (3b) is said by one waiter to another about a customer who is being troublesome.

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In (3c) the time of watching the news is the time mentioned in the preceding discourse, after dinner, just as **he** in (3d) is anaphoric to **John** in the preceding discourse.

The examples in (3e,f) present a potential disparity. It is clear that in (3f) there are two referring expressions, **John** and **he**, with the second anaphoric on the first, but opinions differ as to whether in (3e) the adverbial and the past tense of **called** should be similarly analysed. Partee (1973), drawing on the semantic similarities between nominal and temporal anaphora, explored the view that the morphology realising tense is a pronominal expression referring to event time; on this view **-ed** in **called** (in (3e)) is anaphoric to **at three o'clock**, in parallel to (3f). Partee (1984) rejects the classification of tense morphology as pronominal and referential, and I agree, but this still allows us to hold that the logical form of a tensed sentence contains a variable of event time. The question remains, how does the interpretive component deal with the time variable and the temporal adverbial in sentences like (3e)? Partee (1984) adopts Hinrichs' view, which is that the adverbial and tensed verb **are** interpreted separately, and the time variable is anaphoric to the adverbial, but an alternative view (e.g. Dowty (1982)) holds that tense and a temporal adverbial should be generated and interpreted as a single constituent by syncategorematic rule. I shall return to this point below,

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noting here that on either view the time of Mary's calling for pizza in (3e) is identified as three o'clock. The general point of the examples is that the past tense sentence is interpreted as making reference to a specific time.

The event time of a simple past tense does not _require_ an antecedent or identification by adverbial modification, as shown below.

(4)a. Burleigh Griffin designed that building.

   b. John went to Brandeis.

   c. John left yesterday/last month.

We can estimate roughly when the events described in (4a,b) occurred from general knowledge, but this is not to interpret (4a,b) as containing anaphoric reference to times. In (4c) the interval adverbial provides a range within which the event time falls but does not identify the event time, which remains nonspecific.

In short, the event time of a simple past tense may be specific or nonspecific, or in the traditional terms, definite or indefinite.

THE PERFECT

In the traditional literature the observation that past tense
sentences make reference to specific or definite times is
frequently supported by a comparison with what is sometimes
called the "existential" perfect. For example, Webster
(1789:226-7) writes:

I have loved, or moved, expresses an action performed and

completed, generally within a period of time not far

distant, but leaves the particular point of time wholly

indefinite or undetermined. On the other hand, I loved

is necessarily employed, when a particular period or

point of time is specified...I moved is the definite and

I have moved the indefinite time.

The contrast is illustrated in (5).

(5)a.   I haven't read "Moby Dick".

   b.   What did you do after dinner?

      # I have watched the news.

   c. # At three o'clock Mary has called out for pizza.

   d.   I've never met a man that I didn't like.

   e.   I've never met a man that I haven't liked.

(5a) asserts that there is no past time at all at which I read

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"Moby Dick" (cf.(3a)), and (5b) is illformed because the perfect cannot be understood as anaphoric to **after dinner.** (5d,e), from McCawley (1981), show that the event time of the past tense but not the perfect in a relative clause can be anaphoric to the event time of the main clause. McCawley writes that with (5d) Will Rogers claimed to like any man he met at the time when he met him, while (5e) conveys only that he ultimately grew to like everyone he met. (5c) illustrates the familiar fact that the present perfect cannot be modified with adverbials of specific past times. Note that adverbials such as **at three o'clock, on Monday** are possible with the present perfect but only with a nonspecific reading, where **on Monday** is equivalent to **on a Monday** or **on Mondays;** where the adverbial denotes a specific Monday it cannot modify the perfect.

(6)   I have been to the market on Monday / on a Monday /*last
       Monday.

THE PROGRESSIVE

Along these lines it has been claimed that the progressive is like the past tense in making reference to a specific time. Thus Diver (1963) gives the progressive as a definite time verb form, and Mittwoch (1988:228) claims that "in..nuclear uses of the progressive..the internal time picked out by the

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progressive is always anchored contextually", as in her
examples repeated here.

(7)a. I am working.

   b. At that time/at five o'clock/when you came in I was
       working.

   c. The telephone rang at midnight. I was still working.

According to the analysis of the progressive presented in
Chapter 2, the working event occurs at least at the time
identified as the time of utterance (7a), the time denoted by
the adverbial in the same sentence (7b), or the time referred
to in the preceding discourse (7c). The claim that the framed
time _must_ be identified as a specific time is supported by the
examples in (8).

(8)a.   Mary was working yesterday.

   b.   John was driving the Audi last week.

   c. # John was sharpening a pencil yesterday.

   d. # Mary was drinking a cup of coffee last week.

At first sight (8a,b) are counterexamples to the claim that
the framed time must be identified, as we understand the
working and driving events to be contained within the
intervals denoted by the adverbials; it seems that these are
temporal frame adverbials denoting times within which

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nonspecific event times fall. However, I claim that in fact
there examples are temporary habituals and the adverbial
identifies the framed time, according to the analysis from
Chapter 3, given here for (8b).[1]

(9)a.   [Qt:t = ‖last week‖] (Es[[at(s,t)] v [Et′[t is

a proper subset of t′ & at(s,t′)]] & John drive

the Audi(s))])

b.   John was driving the Audi last week.

c.   John drove the Audi last week.

d.   Mary was working yesterday.

e.   Mary worked yesterday.

It was shown in Chapter 3 that temporary habituals have the
"at least at that time" reading when contrasted with the
simple past, which reads as "at that time". This contrast is
clearer in (9b,c) than in (9d,e), but nevertheless I suggest
that the framing semantics underlies the fact that in response
to the question "What are Mary's shifts this week?" (9e)
conveys "only yesterday"while (9d) conveys "at least
yesterday", with uncertainty whether Mary also works other
days in the week.

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[1]Recall that in my analysis a habitual predication may be
true of a series of events which one wouldn't necessarily
describe as a habit or as typical behaviour; in my analysis,
habituals subsume the kinds of iterated events classified by
Verkuyl (1972,1989) and others in the aktionsarten literature as
activities.

The claim that (8a,b) are habituals is better supported by the
illformedness of (8c,d), with predicates which cannot easily
have a habitual interpretation, unlike (10a,b); and for which
an interpretation of the denoted interval as the framed time
with respect to a single event is bizarre, unlike (10c), where
the temporal frame semantics is evident.

(10)a. John was sharpening pencils yesterday.

   b. Mary was drinking cups of coffee last week.

   c. John was peeling an apple during the ad break.

Here I turn to an issue raised by Mittwoch (1988:224-227), who
claims that contrary to many examples apearing in the
literature, "the progressive in its primary sense (the
'imperfective' one) is incompatible..with durationals like **for**
two hours that give an exact measurement of time". Her
example of this anomaly is given in (11).

(11) It was raining for two hours.

Mittwoch's objection to examples like (11) follows from her
assumption that **for two hours** modifies not the framed time t
but the framing interval I, and on this assumption it should
be possible to further specify t, as in her example (12) which
is clearly anomalous.

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(12) # It was raining for two hours when I arrived.

Using the adverbial **when I arrived** to force the "imperfective"
reading, as opposed to the futurate progressive, Mittwoch
claims that (12) is anomalous because it asserts that at t,
the time of my arrival, the length of the raining event
occupying I is asserted to be somehow predetermined, and that
this is anomalous in the same way as her example in (13).

(13) # The level of the lake was rising ten feet when I
arrived.

I agree that (13) illustrates an interesting restriction on
application of the progressive to telic predicates, also shown
in (14) below, which can only be true of a situation in which
John drank intermittently from all the cups throughout the
same time.

(14) John was drinking three cups of coffee (when I arrived).

But I do not consider (11),(12),(13) and (14) to be of the
same kind. Examples like (13) and (14) will be discussed
further in Chapter 5. I consider that the acceptability of
(11) and the unacceptability of (12) support my view that that
the framed time must be identified, and is in these cases the
target of modification. A felicitous utterance of (11)

requires some contextually recoverable time identifiable as the framed time, which is said to be two hours in length, and the illformedness of (12) follows from the fact that two incompatible adverbials modify the same time, i.e. the framed time.

Mittwoch (op.cit:227) notes that other authors have also taken the **for**-adverbial as modifying the framed time, but rejects the view on the grounds that examples like (11) "would be uninformative, if not positively misleading; they would single out precise subintervals from intervals of indeterminate length for no conceivable reason". In my analysis given in Chapter 2, I explicitly compare the semantics of the progressive to that of modification by **at least**, and I assume that the reasons governing use of **at least** also in part determine the use of the progressive; the speaker avoids committing himself to a precise statement of time or quantity although he is able to set a lower limit on it.

Mittwoch assumes an analysis in which the progressive, viewed as an operator, and durational or interval adverbials viewed as quantificational, interact in scope. She says that the reading she rejects, with the framed time modified by a **for**-adverbial, would arise where the durational adverb had scope over the progressive, and claims that structures in which an interval or durational adverbial has scope over the

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progressive simply cannot occur. Accordingly, she must also reject sentences in which interval adverbials (in her terms) have scope over the progressive, thus modifying the framed time. She discusses examples of the kind offered by Leech (1969), Palmer (1974) and others, analysed in Chapter 2 and sampled here.

(15)a.   John was playing the piano from ten to eleven.

b.   John played the piano from ten to eleven.

c.   Last year/when I was in Boston John was teaching at Harvard.

d.   Last year/when I was in Boston John taught at Harverd.

Her conclusion is that the sentences (15a,c) do not constitute counterexamples to her claim that an interval or durational adverbial cannot modify the framed time, on the grounds that the existence of a longer event is not entailed; in her example, (15c) "seems to pick out an extended interval but this interval need not be a proper subinterval of the interval in which "John teach at Harvard" is true, and that therefore these are not instances of the primary or "imperfective" progressive and there is no framed time or framing semantics.

As I have emphasised in Chapter 2, the existence of a longer event for such sentences is never logically entailed, merely implicated, and I claim that the implicature does indeed hold

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in (15a,c), contrasted with (15b,c). The existence of a longer event where the framed time is identified as a time point, as in "Mary was reading at three o'clock", is a matter of contingent necessity following from the essentially durative nature of reading events, not an entailment.

In short, I disagree with Mittwoch's claim that a for-adverbial or interval adverbial cannot modify the framed time of a progressive; on the contrary, a for-adverbial always modifies the framed time. An interval adverbial must modify the framed time if it is not otherwise identified, and as shown in (8) and (10) above, this is frequently only plausible where the progressive is a temporary habitual.

This gives a three-way distinction in the traditional terms of "tense" definiteness:

(i)   The present perfect must be indefinite; the event time must be nonspecific and cannot have an antecedent nor be identified by a past time adverbial.
(ii)   The simple past may be either definite or indefinite.
(iii) The progressive must be definite; the framed time must have an antecedent or be identified by an adverbial, and is also the target of durational modification.

What is the "Definiteness" of Times?

The traditional definite vs. indefinite difference in verb forms is commonly compared (see Allen (1982:152), Diver (1963:156)) to the difference between the definite and indefinite articles, following the old observation that definite noun phrases of the form **the** G have as values entities which are familiar with respect to a discourse, while indefinite noun phrases of the form **a** G introduce entities which are novel with respect to a discourse. That is, the illformedness of "What did you do after dinner?" " I have watched the news" is compared to the illformedness of "Was the man or the woman carrying the bag?" "A man". It seems that the **a** vs **the** distinction marks a "novel" vs "familiar" distinction, and the assumption underlying the traditional terminology is that this constitutes the indefinite vs definite distinction.

This view, the Familiarity Theory of Definiteness, set forth in Christophersen (1939), is adopted by Heim (1982) and similar semantic theories incorporating discourse representations. Clearly the notion of familiarity is not a quantificational notion, and the familiarity theory of definiteness does not analyse **a** and **the** as quantifiers.

Other recent investigations, however, setting aside the question of novelty and familiarity, have studied definiteness as a property of determiners analysed as quantifiers, focussing on the fact that so-called "definiteness effects" or "definiteness restrictions" class **the** with quantifiers like **every** and **a** with quantifiers like **some** or **several**. I will not discuss this area of research in any detail, referring the reader to Reuland and ter Meulen (1987) for a representative collection of papers, but I emphasise the main point relevant here. Where the findings of this second area of research make successful predictions about the articles (i.e. **a** and **the**), the results follow from the assumption that the articles are indeed quantifiers like the other determiners studied.

So the situation is this. The familiarity theory of definiteness addresses only the articles, having nothing to say about the definiteness effects distinguishing, for example, **every** and **some**; in fact, on the familiarity theory of definiteness the phenomena found with quantifiers are quite separate and should not fall under the same term, but should be attributed to the explicitly quantificational distinctions such as Milsark's (1977) distinction between strong and weak determiners. This view, then, assuming that the articles are not quantificational, faces the challenge of accounting for the evidence of a strong vs weak contrast in the articles; either the familiarity theory must predict definiteness

effects, or the articles must be held to be sometimes quantificational, strong or weak, and sometimes nonquantificational, familiar or novel.

The quantificational theory of definiteness, on the other hand, accounts for the fact that definiteness effects which distinguish quantifiers also classify **the** as definite and **a** as indefinite, but does not straightforwardly account for novelty and familiarity, which appears to be an extra distinction applying only to the articles, <u>unless</u> it can be shown to follow from the particulars of quantification.

Now given that no articles appear in verb forms, I could claim that the novelty vs familiarity distinction exists independently of the determiner system, adopt a nonquantificational analysis of the verb forms and their event times, and sidestep the question of the articles in noun phrases. I am reluctant to do this for the following reasons. (i) The view requires that novelty and familiarity be primitive properties stipulated by rule, and all else being equal it is more attractive to derive the distinction from parts of the theory independently established, if possible. (ii) It is not clear to me that the familiarity theory can account for the other definiteness effects which class the articles with quantificational determiners, and as I have said: this forces us into the unattractive conclusion that the

articles are ambiguous. (iii) J think the task of accounting

for novelty and familiarity in quantificational terms is far

from hopeless. I turn to expanding the third point here.

Discourse Representations

The discussion in this section is based on Heim (1982) and

Partee (1984). Modern versions of the familiarity theory of

definiteness are structured around discourse representations,

or DRs, which mediate between logical forms and

interpretation. DRs can be seen as a formal statement of the

contribution context makes to the interpretation of sentences

as used in context, chiefly by virtue of two properties.

First, information which is given in a discour se may be

appealed to in the interpretation of a later utterance

containing some anaphoric expression, and DRs are a way of

stating this persistence of information. Such information is

termed contextual on the understanding that the context of a

given utterance includes earlier utterances in the discourse.

Second, the context of discourse includes information which is

not mentioned, but held in common by the participants, either

as shared information in general or drawn from the real world

context in which the utterances are made. As is generally

agreed, DRs may also contain this information, although at

this stage it is not clear how such information is to be selected and stored in DRs.

The basic structure of a DR, to use Heim's attractive metaphor, is that of a continually updated file containing a card for each entity in the discourse. Familiar referents are those for which the file already contains a card, and novel referents must have a new card added to the file. Note that such entities may be hypothetical, as discussed by Karttunen (1976), and that "discourse reference" does not carry any commitment to the actual existence of the referent; simply, discourse referents are the values of variables in a DR. Existing DR theories are developed in model-theoretic frameworks, stating conditions on the "embeddability" of DRs as miniature models into M, the general model. If a DR is embeddable into M as a model of the actual world then the values of the variables in the DR exist, but if the discourse sets up a counterfactual environment then the DR is embeddable into M as a model of a world other than the actual world, and in that case the values of variables in the DR need not exist.[2]

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[2]Chomsky points out (p.c.) that the worlds (or counterfactual situations) may be possible or impossible, given that for examples like (i) a discourse referent must be set up as the antecedent of the indicated pronouns. The required discourse entity is an impossible entity.
(i)   If I found an even number not divisible by two, I would use _it_ as my bank access number, and I'm sure _it_ would bring me luck if I bet on _it_.

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I offer a simple illustration here.

(16)   Mary wrote a letter to her mother. She posted it in a

         mailbox on Beacon St.

In processing the first sentence of (16) we set up three cards

as follows.

(17)   x   y   z

       x = Mary   y = x's mother   z is a letter

       x wrote z   z is to y   x wrote z

       y is x's mother   z is to y

The uncertainty about previously shared information arises for

the x and y cards. If Mary is an acquaintance of the parties

to the conversation, perhaps the card is already present in

the file which is the starting position, and the y card may

also be present, or introduced in a move licensed by the

presence of the x card according to a version of Lewis'

accommodation, discussed by Heim (op.cit:370); a definite noun

phrase may introduce a novel referent u if u bears an obvious

relation to an entity already in the file. In this case,

Mary's presence in the file licenses the introduction of her

mother as if familiar. The same mechanism allows the definite

noun phrase in "John read a book and wrote to the author".

The difference is immaterial here, the point being that from

this stage on the x and y cards are in the file. We turn to

the second sentence and update the file as follows.

(18)   x   y   z

   x = Mary   y is x's mother   z is a letter

   x wrote z   z is to y   x wrote z

   y is x's mother   z is to y

   x posted z in u   x posted z in u

   u   w

   u is a mailbox   w = Beacon St

   u is on w

   x posted z in u

The pronouns **she** and **it** must refer to entities already in the

file. Either x or y could be assigned to **she**, but our

knowledge of writing and posting letters narrows the choice to

x. The only plausible candidate for the value of **it** is z. An

entity must be added for **a mailbox**, which is indefinite,

therefore novel, so the u card is added, and the w card is

added (or already present) in the same way as the x card. All

the information about each entity is recorded on the card for

that entity.

DRs and Quantification

DRs along these lines (or, more generally, the notion of discourse situations and entities formalised in DR theories) are also useful in the interpretation of quantifiers; note that the remarks made here are my own, and not to be understood as claims of the theories in question. The central point I appeal to here, that contexts, including discourses, provide domains, stands independently of any particular theory. DR theory is used here by way of illustration.

The DR given above can be seen as a miniature model containing the entities which are values of x, y, z, u and w. If we consider this little model as a domain of quantification, my subsequent utterance of **the mailbox** or **the letter** can be viewed two ways. Either the expressions are marked for familiarity of referent, and pick out existing discourse referents satisfying the predicates, or they are Russellian quantificational expressions and pick out the <u>unique</u> such entities in the domain.

Russell's analysis of definite descriptions, cited here, chiefly runs into trouble because of the claim of uniqueness.

(19) the F

Ex[(F(x) & (Ay(F(y) →→ y = x)))

Critics were quick to point out that definite descriptions

discussed by Russell like **the author of "Waverley"** are

carefully chosen to satisfy the uniqueness claim; that is,

there is only one entity which satisfies the predicate **author**

of "Waverley". But definite descriptions are seldom like

this, as in the examples below.

(20)a. **The bus** is late.

b. I didn't turn off **the stove**.

c. Did you get **the milk**?

A successful defence of Russell's analysis requires some way

of accounting for examples like (20), and one possibility is

that of stating how the domain of quantification can be

determined in such a way that it does in fact contain only one

entity satisfying the predicate of the description.[3] Such

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[3]As is well known, the question whether or not this can be
done is one of the central issues in the extensive literature on
definite descriptions, perhaps the main issue. On the basis of
examples of singular definite descriptions for which it seems
impossible to fix a domain such that a unique entity in the
domain satisfies the description, many authors have argued that
definite descriptions must be analysed as ambiguous: in some uses
they are not quantificational, but merely referring terms with no
requirement of uniqueness. A summary of the discussion is well
beyond the scope of the present work, and here I say only that I
hold the view that definite descriptions are uniformly quantified
expressions. For a full review of the discussion and arguments
for the "always quantificational" position, see Neale (1990) and

limited domains of quantification, subsets of the universal

domain, will be determined by features of the linguistic and

nonlinguistic context, and I suggest here that the set of

cards in a DR is a promising candidate for such a limited

domain. On this view, the definite descriptions in (20) are

interpreted according to context, not primarily because their

values must be familiar (or salient), but because their values

are unique only with respect to the domain determined by the

DR, and this automatically establishes that they must appear

in the DR, where the DR is a representation of the linguistic

and nonlinguistic context.

Of course if a definite description is complete, in that only

one entity in the universal domain satisfies it, there is no

need to determine a restricted domain of quantification to

satisfy the uniqueness requirement, and therefore descriptions

such as the auther of "Waverley", the universe or the product

of 457 and 99 need not be considered to have familiar (or

salient) entities in a discourse or context as values.

Familiarity theorists grant that the uniqueness requirement

must also be stated. For example, the discourse above in (16)

cannot felicitously continue "The woman had a lot on her

mind", as the DR contains two entities satisfying the

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references given there.

predicate "woman"; even if an entity is context-familiar, it can be the value of an expression **the** F only if it also uniquely satisfies the predicate F in the DR.

The use of restricted domains of quantification is also indicated for other quantifiers such as **all, most, many** and **few**. Partee (1984), drawing on Hinrichs, provides an analysis of **every** in a DR framework which only allows for the universal domain as range, as is correct for examples like "Every farmer who owns a donkey beats it" taken without context; any farmer at all who satisfies the first clause must also satisfy the second for the sentence to be true. But we also commonly use these quantifiers to range over subdomains, as in (21), and again these subdomains are determined by context.

(21)a. All students must finalise their courses by this date.

   b. Most people thought the symphony was pretty weird.

   c. Many delegates haven't registered yet.

The correct interpretation of these sentences requires that the domain of quantification be restricted to the students in a particular institution (21a), the people who attended a particular concert (21b), and the delegates expected at a particular convention (21c).

In short, I suggest that familiar discourse referents are

signalled by **the** only where the noun phrase in question is an

incomplete definite description, and then familiarity is a

necessary but not sufficient condition for satisfying the

uniqueness requirement of **the**, on Russell's analysis; that is,

the assertion of uniqueness is true only if the entity which

is the value of **the** F is a unique F in some domain. The only

available domain which meets this condition is the context,

which is formally represented as above in DR theories.

Clearly, if the entity which is the value of **the** F is the

unique entity satisfying the predicate F in the DR, a 'fortiori

that entity is in the DR, therefore familiar.

This view provides a unified account of **the** as the Russellian

quantifier, predicting that an incomplete description must

have as its value a familiar entity which also uniquely

satisfies the predicate in the DR, and predicting that a

complete definite description has no familiarity requirement.

Moreover, because it analyses **the** as a quantifier, the

separate results of the "Definiteness Effect" investigation

are retained, and need no nonquantificational explanation.

Finally, the explanation of the familiarity effect proposed

here for **the** also extends to other undisputed quantifiers as

in (21).

Noun phrases of the form **a** G, analysed as existentially

quantified, may introduce new referents into a discourse

because there is no extra requirement such as the uniqueness

requirement which only a familiar referent can meet. I note

here that indefinite noun phrases are not unable to take as

value referents which are in a sense familiar, as in (22).

(22) Mary sat with a large bunch of lilies on her lap. John

      had given them to her. Thinking herself unobserved, she

      picked up a lily and ate it, then ate another.

Clearly, the lilies Mary ate were taken from the familiar

lilies in her lap, and although the correct analysis of

passages like this probably involves adding a new card to the

file for **a lily** and **another**, surely it must also be recorded

that these entities are identical to entities introduced at

the interpretation of **a large bunch of lilies** and subsequently

referred to by the pronoun **them**. The point here seems to be

that although the group of lilies are introduced by the noun

phrase **a large bunch of lilies**, and I assume a card is

introduced for the bunch as an entity, no single lily is

introduc d individually and the later sentence "She picked up

a lily and ate it" may be true of any one of the bunch; within

the limited domain established in the DR, the predication is

existentially general, meaning roughly "She picked up and ate

some lily or other from the bunch". Perhaps we should say

here that the individual lilies are strictly novel referents

until they are mentioned individually, because until that

point no card is established in the file for each lily.

The fact that an indefinite noun phrase generally introduces a
novel referent may be an instance of the operation of Grice's
Maxim of Strength: if you mean to speak of a particular entity
already introduced, make yourself clear by using **the** combined
with a description which is sufficient to force the intended
interpretation. If you introduce a novel referent with an
incomplete description, or a referent which is a member of a
familiar group but not previously individually identified, you
must use **a** because the domain of quantification providing for
interpretation of **the** has not been established.

The novelty effect with indefinite noun phrases is not only
found with noun phrases of the form **a G**, as illustrated below;
in these examples the entities which are values of the
indicated phrases in (23a-c) are entirely novel discourse
referents, while those in (23d,e) are strictly novel, but
members of a familiar group.

(23)a. We went into the field and sat down. **Several cows**
        were wandering along the far fence.
     b. When I passed the desk I noticed **some papers** lying on
        top of it.
     c. Bill gave me the forms, the instruction booklet and
        a few pens.

d. We passed through a mob of cows. Several cows were
    leading calves.

e. Bill bumped into a table covered with papers. Some
    papers fell to the floor.

This observation shows that noun phrases judged to be definite
according to the familiarity effect and noun phrases judged to
be definite in the Definiteness Effect literature are the same
set; returning to the distinction drawn in Chapter 2 between
adjectival and nonadjectival quantifiers, we can be more
explicit about the relationship between the two
classifications.

At the level of data analysis, the various definiteness
effects studied in the cited works divide quantifiers into two
classes, those which may appear in certain environments and
those which may not. Although there are several ways of
formally analysing or describing the semantic properties
common to the members of each class, the different analyses
are similar in spirit, and I shall use the distinction drawn
in Chapter 2 between adjectival and nonadjectival quantifiers
as representative of the various dual classifications of
quantifiers.

Recall the central point made above, which is that adjectival
quantifiers such as **several, some** and **many** or **few** on their

adjectival readings state the cardinality of a single set, even though this set may be expressed as an intersection. Nonadjectival quantifiers, on the other hand, must state a relation between two sets. I adopted the notational distinction shown below to mark this.

(24)a.   [Ax: man(x)] (mortal(x))

b.   Ex(man(x))

The quantifiers classed as definite by the tests of definiteness effects are nonadjectival, and the quantifiers classed as indefinite are adjectival. From the discussion above, the definite or nonadjectival quantifiers are those for which familiarity effects arise, and the familiarity effect is simply this: the set which is the first relatum of the nonadjectival quantifier is provided by context, not by the universal domain of discourse.

For the present discussion, so far I have assumed Russell's quantificational analysis of **the** as in (19), but from now on I shall assume the analysis of Chomsky (1975), who argues persuasively that **the** is in fact a universal quantifier.

As Chomsky argues, if the uniqueness requirement of a singular definite description is incorporated into the definition of **the**, the same analysis cannot be applied to plural definite

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descriptions which have universal force, and this is a serious weakness. But if the requirement of singularity or plurality is attributed to the predicate which bears number marking, we can analyse the as uniformly universal, ranging in a singular description over a set which is marked as single-membered by the non-plural noun complement, and in a plural description over a set which is marked as containing at least two members by the plural noun complement.

To clarify this point, here I follow most current work and abandon Russell's notation, using instead set-theoretic definitions taken from Barwise and Cooper (1981). The definition of singular **the** is equivalent to Russell's.

(25)a. All Fs are G.

$[Ax:F(x)](G(x))$ is true iff $|F - G| = 0$

b. **The F is G** is true iff $|F - G| = 0$ & $|F| = 1$

c. **The Fs are G** is true iff $|F - G| = 0$ & $|F| > 1$

d. **Both Fs are G** is true iff $|F - G| = 0$ & $|F| = 2$

Here we see that **all**, **the** and **both** have the same universal quantificational force "$|F - G| = 0$", with additional stipulations on the cardinality of F for **the** and **both**; as above, the cardinality stipulation on **the** is drawn from the

singular or plural predicate. [4] Noting further that the

cardinality stipulation for **the** always entails that the set

which is universally quantified is nonempty, we can say simply

that **the** is the universal quantifier with existential

commitment.

As I said in Chapter 2, in logic the universal quantifier

carries no information about the cardinality of the set it

ranges over, which may be empty, single-membered or many-

membered, but in natural language the use of **all** or **every** does

implicate commitment to a many-membered set as range. This is

probably because the speaker can choose to say **the F** if he

means to exhaust a single-membered set, **both Fs** for a two-

membered set, and can use a counterfactual construction if he

wishes to speak about potential members of a set which is

actually empty, so by Grice's Maxim of Quantity <u>in practice</u>

the universals are restricted to quantifying over sets which

are not known to be empty, single-membered or two-membered.

To be clear, (26a) is strictly true but has a false

implicature, while (26b) is false.

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[4] Barwise and Cooper (op.cit:184) note that in the partitive
construction [Det_1 of [Det_2 N]], the inner noun phrase must be
interpreted as a set expression rather than as a quantifier, so
that it may in turn combine with Det_2 to form a quantifier. The
rule they propose (op.cit:207) is stated only for partitives, but
a more general approach is needed to deal with nondistributive
predicates as in "The rocks rained down"; (this was brought to my
attention by Higginbotham p.c.). Here again the plural
description must be interpretable as a term denoting a set or
group, rather than as a quantifier.

(26)a. All present kings of France are bald.

   b.   The present king of France is bald.

Concluding that novelty and familiarity are indirectly quantificational properties, so far it appears that the phenomena concerning the perfect, simple past and progressive reviewed above should be attributed to the following distinctions:

(i)   The event time of a present perfect sentence is existentially quantified.

(ii) The event time of a simple past tense sentence may be existentially quantified or bound by **the**.

(iii) The framed time of a progressive sentence is bound by **the**.

Before considering the progressive and the simple past further, I address several important issues concerning the perfect which have been discussed in the literature, and bear on my claim about the existential quantification over times fourd with the perfect.

The Perfect

The English perfect verb form has two functions. The first is to serve semantically as the indicator of past times with the peculiar properties of indefiniteness shown above, and others including present relevance to be reviewed below. I call this sense of the perfect verb form the phase perfect, adopting Palmer's (1965) term.

It is also clear that the auxiliary **have** can be used to indicate a time prior to a given reference time where the past tense is not available for that purpose. This second use I shall call the tense perfect.

Before proceeding to the phase perfect I briefly review here the tense perfect, drawing on discussion in McCawley (1971), Palmer (1965) and Emonds (1975).

As outlined in Chapter 1, tense (semantically) is a relation between a reference time t*, interpreted by context, and a second time at which an event or situation is located. The usual interpretations are:

Past $t < t*$

Present $t = t*$

Future $t* < t$

In the simple case t* is assigned the time of utterance as value, but past and future times may also serve as values for t*, as below.

(27)a. Mary said she would go to the movie.

   b. Mary thinks John will have left.

In (27a) the past tense of **said** establishes a time prior to the time of utterance which serves as t* for the embedded future modal **will**: thus (i) Mary go to the movies at t, (ii) Mary say so at t*, and (iii) t* < t, giving the future-in-the-past reading for the event time of **would go**. Similarly in (27b), the modal **will** establishes a future time t* such that John's leaving at t precedes t*. This is an instance of the tense perfect used to express "t < t*".

It has already been noted that the phase perfect cannot be modified by temporal adverbials which identify event time, and in fact any adverbial which conveys that information is impossible.

(28)a. * John has left at three o'clock yesterday.

   b. * John has left by the three o'clock train.

Following McCawley, wherever the past tense relation "t < t*" is to be expressed and the past tense form is not available,

have can be used to express the past tense, and then the restriction on adverbial modification does not apply. Because the past tense morphology appears only on a finite verb, it cannot appear in nonfinite clauses or where a modal occupies the finite verb position, and in these cases **have** is substituted.

(29)a.   John may/will/should have left at three o'clock.

    b.   John is thought to have left at three o'clock.

    c.   Having left at three o'clock, John avoided the rush hour traffic.

Note that **at three o'clock** here identifies the event time, in contrast to (28). The past tense morphology is also unavailable where it has already been used to establish a past time, as in (30a), where event time precedes a time t which in turn precedes the time of utterance, or, as Emonds (1975:354) points out, where the past tense morphology in a counterfactual does not have past tense meaning and pastness is expressed by **have**, as in (30b).

(30)a.   Mary had left at three o'clock so we didn't see her.

    b.   He wishes that you had come yesterday.

It is clear that the tense perfect illustrated here is simply an alternative realisation of Past Tense, and will not be of

further concern. I turn now to the phase perfect, using the

present perfect as illustration because it has only the phase

perfect reading.

The phase perfect, as shown above, introduces a past time

which may not be anaphoric to any previously mentioned or

salient specific time, nor may it be modified by a temporal

adverbial which denotes a specific past time. These points

were illustrated in (5) above.

A second property commonly observed is that the event or state

of affairs described by a phase perfect sentence has some

continued relevance or after-effect at the reference time it

precedes; with the present perfect the current relevance holds

at the time of utterance or the time referred to by the

present tense in that context.

(31)a. The lake has frozen.

     b. I can't come to the party as I've sprained my ankle.

     c. I've written to them but they haven't replied.

In these examples we generally understand that the lake

remains frozen (31a), my ankle injury has not yet healed

(31b), and I am now waiting for a reply to my letter (31c).

Examples like (31c) and (32a,b) below have led some writers to

claim that the present perfect is used for recent events,

while (32c,d) apparently illustrate a presupposition of the

present perfect, that the subject of predication be still in existence.

(32)a.   I haven't eaten.

   b.   Have you seen my glasses?

   c. (?) The Hittites have produced few major poets.

   d. (?) Newton has explained the movements of the moon.

Where the present perfect appears with state predicates or progressives and certain adverbials, as in (33), the state or situation is understood as continuing to and possibly past the present time or time of utterance, strengthening the claim that the present perfect refers to a past time and also to the time of utterance.

(33)a. The Laskys have lived here since 1980.

   b. I have been reading for three hours.

All of these "present relevance" sentences appear distinct from the basic so-called "existential" perfect in (34), where no recency, continuation of result or particular current relevance is expressed; here the sentences seem simply to assert that an event of the type described happened at some time in the past, no matter how distant.

(34)a. I have been to New York several times.

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b. I have tried Mexican-style sushi but I didn't like it
   much.

c. John has had a broken leg from playing football.

These apparently disparate readings are sometimes described as
distinct senses of the perfect, such as the Perfect of Result
(31a,b), the Recent Perfect (32a,b), the Experiential Perfect
(34), etc. More recently attention has been focussed on an
aspect of the difference between (33) and (34), illustrated by
the ambiguity of (33a), repeated here.

(33a) The Laskys have lived here since 1980.

On one reading the interval since 1980 properly contains a
time of the Lasky's living here, though they no longer live
here; writers such as Mittwoch (op.cit.) and McCawley (1981)
ascribe this reading to an existential quantification over
times contained in the interval since 1980. On the other
reading the Laskys moved here in 1980 and still live here, and
for this reading Mittwoch proposes a universal quantification
over times contained in the interval since 1980, the contrast
then being between the Laskys living here at a time since 1980
and at all times since 1980; thus in addition to the proposed
different Perfects mentioned above we have also the
Existential and Universal Perfects, where the Existential is
probably identical to the so-called Experiential Perfect.

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Nevertheless, I think this profusion of senses for the phase perfect can be reduced to some uniformity.

Assume that the phase perfect specifies a past interval I whose final endpoint is t*; that is, t* is the latest moment contained in the specified interval.

(35)   EI(I = [t′,t*])

The event or situation described by a perfect sentence is located at a nonspecific time t within this interval.

(36)   EIEt(I = [t′,t*] & t is a subset of I & Ee[at(e,t)])

Just as a simple past tense sentence specifies an event time which may be modified by an adverbial identifying the event time (37a), or denoting an interval containing the event time (37b), so the interval specified by the perfect can be modified by an identifying adverbial (37c) or by a framing adverbial (37d).

(37)a.   John left at three o'clock.
    b.   John left yesterday.
    c.   Mary has seen John since ten o'clock.
    d.   Mary has seen John today./this week.

Using in to relate I to the denotation of a frame adverbial, the temporal relations of (37c,d) are represented as in (38).[5] [6]

(38)a. EIEt(I = [t´,t*] & I = ‖since ten o'clock‖ & t is

a subset of I & Ee[at(e,t)])

b. EIEt(I = [t´,t*] & in(I,‖today‖) & t is a subset of I

& Ee[at(e,t)])

From the modification by frame adverbial as represented in -(18b) it follows that t* is in the interval denoted by the adverbial, and thus modification by any adverbial whose denotation excludes t* (yesterday, last Monday) will be contradictory.

Adverbial modification can also approximately locate the event time t as near to or distant from t*, as in (39a,b), with the suggested readings in (39c,d), where small and large are gradable predicates.

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[5]Modification by frame adverbials will be discussed further below. Here I use in deliberately to avoid asserting specific relations of inclusion or membership for reasons which I hope will become clear.

[6]The existential quantification over intervals will be modified below.

(39)a. I have long given up pipe tobacco.

   b. I have recently seen John.

   c. EIEt(I = [t´,t*] & t is a subset of I & Ee[I give up
       pipe tobacco(e) & at(e,t) & large([t,t*])])

   d. EIEt(I = [t´,t*] & t is a subset of I Ee[I see
       John(e) & at(e,t) & small([t,t*])])

This type of modification does not modify the interval I
specified by the perfect, nor can it precisely identify the
event time t by giving the exact size of the modified interval
[t,t*], as in (40).

(40) * I have seen John three days ago.

Alternatively, we could say that **three days ago** is a specific
time adverbial comparable to **when John arrived**. It cannot
modify the interval specified by the perfect as its denotation
excludes t*, and it cannot identify the event time t because
the event time of a phase perfect must be nonspecific.

To sum up so far, I claim that the perfect presents
nonspecific event times t in an interval I whose final
endpoint is t*. The interval I can be modified by frame
adverbials or by identifying adverbials. The event time t
cannot be modified by identifying adverbials, though as we saw
earlier the event time can be modified by nonspecific frame

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adverbials as in "I have been to the market on (a) Monday".

Nonspecific **on Monday** must be held to modify the event time;

it cannot modify the interval I as its denotation excludes t*,

which is also consistent with the fact that unlike **since 1980**

or **this week**, claimed to modify I, nonspecific **on Monday**

cannot be preposed.

(41) * On Monday I have been to the market.

The peculiar characteristics of the phase perfect outlined

above generally involve the location of the event time,

whether it is recent or not, and whether or not it "fills" the

interval I. As the definition stands, an unmodified perfect

places the event time anywhere prior to t*, which corresponds

to the experiential perfect of the examples repeated below.

(42)a. I haven't read "Moby Dick".

   b. I have been to New York several times.

   c. I have tried Mexican-style sushi but I didn't like it

       very much.

The first question is whether or not there is a semantic

difference between these and the so-called recent perfect or

result perfect in (43).

(43)a. Have you seen my glasses?

    b. I have already eaten.

    c. The lake has frozen.

    d. I've sprained my ankle.

I consider the difference here to be pragmatic, and that the range of the perfect is constrained by considerations of relevance. For example, if the utterer of (43a) wants to locate her glasses, she means "Have you seen my glasses recently enough for it to be likely that they are still in the same place?", but if she intends to enquire whether the hearer knows what the glasses look like, the interpretation is as for the experiential perfect in (42); "Have you seen my glasses at all?". Similarly, (43b) is certainly true of any speaker more than a few hours old and in good health, and is generally a response to an offer of food, so the reading "I have eaten within a brief range containing the current meal time" is the only one we have occasion to use, though the negative "I haven't eaten since last week" explicitly provides a longer range. Along the same lines, (43c) is interpreted as "The lake has recently frozen and remains frozen" if said at the beginning of winter, but in a conversation about unusually harsh winters of the past it merely asserts that the lake froze at some time. (43d) is simply irrelevant if offered as an excuse for not doing something when the effects of the injury no longer hold, but again in a conversation about past

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injuries it merely asserts "at some time in the past". In short, the recent perfect semantically reduces to the existential or experiential perfect with context-dependent pragmatic restrictions added.

The more intriguing effect of the perfect illustrated in (32c,d), repeated here, does seem to indicate an idiosyncratic presupposition of the phase perfect.

(32)c. (?) The Hittites have produced few major poets.

d. (?) Newton has explained the movements of the moon.

Earlier this phenomenon was thought to be closely tied to the continued existence of the subject of predication, but McCawley (1981) cites further examples supporting his view that what is involved here is "the presupposition of the existential perfect that events of the type in question are possible at the time of the speech act".

(44)a.   The movements of the moon have been explained by Newton.

b.   Have you seen the Monet exhibition?

c.   Did you see the Monet exhibition?

d.   Frege has contributed a lot to my thinking.

e.   Frege has been denounced by many people.

f. (?) Frege has been frightened by many people.

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The difference between (32d) and (44a) is claimed to be due to
the effect of subject-as-topic on a distinction in specifying
"events of the type in question"; thus (32d) presupposes the
continued possibility of events of Newton explaining the
movements of the moon, which can no longer occur, while (44a)
is concerned only with events of explaining the movements of
the moon, which can still occur. The difference between
(44b,c) is that where (44c) is appropriate it is no longer
possible for the hearer to go to the exhibition, say because
the exhibition is closed, the hearer has left town or is
confined to bed. (44d,e) are fine in contrast to (44f)
because Frege can influence people or be denounced after his
death, but not be frightened. I agree with McCawley's
description of the phenomenon, with the proviso that I doubt
this is strictly presupposition, in that where it fails the
perfect is inappropriate but does not strike one as truth
valueless or false; it seems that (44f) is not of the same
status as "The earth hasn't stopped revolving round the moon",
which is bizarre. I conclude that this is an idiosyncratic
implicature of the phase perfect, not to be accounted for in
the truth conditions.

I turn now to the distinction between the existential and
universal perfect illustrated by the ambiguity of (33a),
repeated here.

(33)a. The Laskys have lived here since 1980.

As outlined above, the approach taken by Mittwoch (op.cit.)
and others to this problem claims that the perfect is
ambiguous between representations of the general form in (45).

(45)a. Et(t ∈ I)

   b. At(t ∈ I)

The difficulties with this view include the following. First,
by attributing the ambiguity to the perfect, it fails to
account for the fact that the universal reading occurs only
with modification by **since**-adverbials, **for**-adverbials and
always. Second, if the perfect independently introduces a
universal quantifier over event times in (46), modification
with **always** should be ungrammatical on the grounds of vacuous
quantification.

(46) I have always lived in London.

Third (see McCawley (1981:85), the universal quantifier is
intended to represent the reading "throughout the interval";
this reading is found not only with continuous states or
situations, but also with iterated events, and in that case
the universal quantification over times, constituting a claim
of continuity, is false.

(47)a. I've lived in Chicago on and off for thirty years.

   b. John has worked for this firm intermittently for

       thirty years.

   c. John has constantly cheated on his tax return since

       1980.

A second approach, found in Richards (1982), takes the perfect
as introducing an existential quantifier and entering into
scopal ambiguities with a universal quantifier introduced by
for- and **since**-adverbials. This approach is supported by the
familiar observation that preposing the adverbial forces the
universal reading.

(48)a. Since 1980 John has lived in Boston.

   b. For ten years John has lived in Boston.

The obvious objection here is that preposed **since** need not be
universal, and the interpretation depends very much on the
aspectual type of the event involved.

(49)a. Since 1980 the Laskys have lived in Tallahassee, Baton

       Rouge, Hicksville, Galveston, Anchorage and now here.

       Marge is fed up.

   b. Since 1980 Mary has published three books.

A version of this analysis may work for **for**-adverbials as the

universal quantifier is there a little more plausible; **for**-adverbials generally must modify predicates of more or less continuous events. An analysis of examples like (47a-c) as habituals, therefore as states, would allow for the proposed analysis of **for**-adverbials, taking into account the continuity of the states of affairs rather than the discontinuity of the events they consist of. Note then that sentences about repeated or multiple events which are not habituals, such as (49b), may be in the perfect and modified by **since** adverbials but not by **for**-adverbials (*"For ten years Mary has published three books"), supporting a distinction between **for**-adverbials on the one hand, and **since**-adverbials and the perfect on the other; only the former requires a predicate understood as true of a continuous event or state.

I conclude that the ambiguities at issue do not stem from the presence of a universal quantifier in the perfect or in **since**-adverbials.

Following from my observation that the "universal" perfect is in any case dependent on adverbial modification, the unmodified perfect having only the existential reading, I agree with Richards that the problem lies with the adverbials. The same "existential vs. universal" ambiguity arises with other interval adverbials and the simple past, and as above, the preposed adverbial gives the universal reading with some

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predicates but not others.

(50)a. The light was on/John was here yesterday.

b. Yesterday the light was on/John was here.

c. Yesterday the light was on/John was here a couple of times.

d. John walked along the towpath between ten and eleven o'clock.

e. Between ten and eleven o'clock, John walked along the towpath.

Interval adverbials are generally ambiguous between a reading of identity with event time and a reading of proper inclusion of event time, or temporal frame reading, and the factors which disambiguate the relation are not clear, apart from the observation that bounded events give rise to the proper inclusion reading. The correct account of this may involve an ambiguity in interval adverbials between existential and universal quantification; the point I wish to make here is that none of these adverbials has a constant universal quantification, and the facts discussed above are not due to any universal quantification in the perfect itself. In short, the perfect simply introduces existential quantification over past event times.

This brings me to some speculative comments about the

presupposition or implicature of the continued possibility of like events, illustrated in (32) and (44). I have said that the present perfect simply existentially quantifies over event times falling within a vaguely bounded past interval which extends to the present, and this view is not unlike the analysis given above for habituals (Chapter 2), seen as existential quantification over events falling in a vaguely bounded interval determined by pragmatic considerations. In both cases we have the assertion of existence of events or event times vaguely but not precisely located within some temporal range.

As we have seen above, the habitual is often, though not always, interpreted as a characterising predication, expressing a typical property of the subject of predication, and I have claimed that this interpretation is conventional and pragmatic rather than semantic, as it partly depends on plausibility. For example, (51a,d) are reasonably understood as characterising but (51b,c) are not.

(51)a. Beavers build dams.

b. Dams are built by beavers.

c. Beavers come around here.

d. Honey is produced by bees.

This convention may reflect the general cognitive strategy of

organising information by generalising from instances. If I

meet five or six Notre Dame alumni who are football crazy, I

then know only that there exist football crazy Notre Dame

alumni, but so long as I don't also meet a larger number of

alumni who hate football I am likely to generalise to the view

that all Notre Dame alumni are football crazy. Similarly, the

assertion "Notre Dame alumni go to all the football games" may

merely assert that there are alumni who do this, but is likely

to be understood as characterising, and therefore true of most

alumni or all "typical" alumni.

I tentatively suggest that the present perfect has a similar

property of being understood as characterising, but in this

case that which is characterised is the far more vague entity

"the way things are" during the past interval extending to the

present specified by the perfect. The entity "the way things

are" is comparable to the denotation of "ambient it" argued

for by Bolinger (1973); he claims that it, often described as

a syntactic dummy element, is in some constructions a deictic

pronoun of very general interpretation, embracing the weather,

the location, attendant circumstances, etc. Assuming that the

situation or circumstances holding throughout the interval

specified by the perfect are understood as characterised by

the existence of the described events, we might expect the

apparent implicature that events of that type are possible

throughout the interval.

To sum up so far, the present perfect, interpreted always as a phase perfect rather than a tense perfect, existentially quantifies over event times falling within a past interval extending to the present. The interval may be further specified by direct modification, or constrained by considerations of relevance, as illustrated in (43). The implicature that events of the kind described in a present perfect sentence are possible throughout the interval may be an instance of the generalisation to typicality found with habituals, which also assert the existence of events within a temporal range.

The Progressive

I have said above that the framed time of a progressive sentence is always definite, and accordingly I replace the quantifier variable in the definition from Chapter 2 with **the**, as illustrated here.

(52)   "Mary be reading" is true iff

[the t:Present(t)] (Ee[at(e,t)] v [Et'[t is a proper

subset of t' & at(e,t')]] & Mary read(e)])

According to my remarks in Chapter 1, I treat tense as a
predicate on times, and shall represent the relevant parts of
truth definitions for the past, present and future progressive
as in (53).

(53)a. Past progressive:

        [the t:t < t*] or [the t:Past(t)]

     b. Present progressive:

        [the t:t = t*] or [the t:Present(t)]

     c. Future progressive:

        [the t:t* < t] or [the t:Future(t)]

I also noted above that at least two possible approaches to
the analysis of the adverbial in examples like (54) have been
suggested.

(54) John left at three o'clock.

I said that Partee and Hinrichs favour an approach in which
the past tensed verb and the adverbial are separately
interpreted, with the event time of the past tense verb
treated as anaphoric to the adverbial, while Dowty favours
generating and interpreting the tense and adverbial as a
single constituent. Here 1 take an approach which I consider
to be in the spirit of Dowty's view, noting that the tense and
adverbial here giving the content of the predicate on t are

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treated in the same way as the N′ of a noun phrase:

(55)a.   John was working at three o'clock.

        [the t: Past(t) & t = ‖three o'clock‖]

    b.   the man in the red hat

        [the x: man in the red hat(x)]

A further point about the nature of the restrictive predicate
is that in the representations given so far the predicate from
adverbials is an identity statement, as in the relevant parts
of representations repeated below.

(57)a.   [the t: t = ‖three o'clock‖]

    b.   [the t: t = ‖from ten to eleven‖]

But adverbials such as **at three o'clock** and **from ten to eleven**
are really descriptions, or predicates on times rather than
referring expressions. This is particularly clear when we
recall that these adverbials have both a specific and
nonspecific reading, only the latter being possible with the
phase perfect. Given that these adverbials are really
descriptions, the contrasting (57a,b) are better represented
as (57c) with the adverbial as a predicate. The specific
reading of the adverbial in (57a) is pragmatically determined:
this point, and the indefinite quantification for the simple
past in (57a) are discussed in the next section.

                                -

(57)a.　John left at three o'clock.

　　b.　John has left at three o'clock.

　　c.　EtEe[three o'clock(t) & John leave(e) & at(e,t)]

The representations of a selection of types of progressive
sentence are given below in illustration.

(58)a.　Single event

　　　　John was playing the piano from ten to eleven.

　　　　[the t: Past(t) & from ten to eleven(t)] (Ee[[at(e,t)]

　　　　v [Et'[t is a proper subset of t' & at(e,t')]] & John

　　　　play the piano(e)])

　　b.　Temporary habitual

　　　　John is driving the Audi this week.

　　　　[the t: Present(t) & this week(t)] (Es[[at(s,t)] v

　　　　[Et'[t is a proper subset of t' & at(s,t)]] & John

　　　　drive the Audi(e)])

　　c.　Present event, no adverbial

　　　　Mary is working.

　　　　[the t:Present(t)] (Ee[[at(e,t)] v [Et'[t is a proper

　　　　subset of t' & at(e,t')]] & Mary work(e)])

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d. Present temporary habitual, no adverbial

[the t: Present(t)] (Es[[at(s,t)] v [Et'[t is a proper

subset of t' & at(s,t')]] & Mary work(e)])

e. Present temporary state, no adverbial

The statue of Tom Paine is standing at the corner of

Kirkland and College.

[the t:Present(t)] (Es[[at(s,t)] v [Et'[t is a proper

subset of t' & at(s,t')]] & the statue of Tom Paine

stand at the corner of Kirkland and College(s)])

As I said in Chapter 3, the temporary state (including

habituals) without explicit adverbial modification carries the

temporary implicature because of its contrast with the simple

tense: the predication of a simple tense is not semantically

dated or temporally located, and its temporal range is

pragmatically fixed as the maximal plausible part of the

existence of the subject of predication, depending on the

content of the predication. The explicitly dated progressive

of a state is chosen over the simple tense where some range

other than the maximal range is intended, and this can only be

a subrange.

In all the examples considered here the framed time is taken

to be a single time, and so "[the t]" has the force of a

singular definite description, but as I said earlier, the

quantifier **the** appearing in these representations is taken to have existential commitment but not a uniqueness commitment. Following Chomsky, the singularity of a singular definite description comes from the predicate rather than from the quantifier: for example, the singularity of **the dog** comes from the predicate **dog**. Because the times under consideration are not denoted by overt expressions of the form **the time(s)**, the singularity or plurality of the set of times cannot be determined in the same way. Where tense and an adverbial provide a complete definite description, as in "Mary was reading at three o'clock yesterday afternoon", only one time in the universal domain satisfies the description in any case. Where the tense and an adverbial, if any, provide an incomplete description the set of times to be quantified is provided by context, and may be single-membered or many-membered. If the context presents a many-membered set of antecedent times the progressive universally quantifies a many-membered set as in (59).

(59) A. You say you went back to the house four times that
         week?

      B. Yes, and the defendant was digging in the yard.

Although for clarity B might respond "Each time the defendant was digging in the yard", his response in (59) has the same reading, that a digging event was in progress at each of the

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four times he visited the house.

The Simple Past

I have said that the simple past may be either definite or
indefinite, in that the event time of a simple past sentence
may be specific or nonspecific. On the approach taken to the
progressive and perfect, where the contrast in definiteness is
attributed to quantification over event times, it seems that
the event time of a simple past sentence is either
existentially quantified or quantified by **the**, depending on
the properties of particular examples. One way of stating
this would be to say that the simple past is ambiguous between
the forms in (60), and that context disambiguates which is
intended.

(60)a.   [the t: F(t)] (G(t))

   b.   Et (G(t))

Here I prefer to take another approach, and suggest that the
simple past is simply not specified at all for definiteness or
indefiniteness; the tensed verb introduces a free variable of
event time which is bound by existential closure, as was
proposed above for the binding of the event variable. That

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is, no expression of the syntactic representation has as part of its semantics quantification over event time. This can be extended to any verb form which is neither a progressive nor a phase perfect, and thus is marked only for semantic tense, including futurative **will** sentences and tense perfect sentences. Both the specific and nonspecific readings of these forms are illustrated in (61).

(61)a. There will be war.

b. John should have left.

c. John will leave at three o'clock tomorrow.

d. John should have left at three o'clock yesterday.

The obvious question which arises on this view is why the phase perfect and simple tenses should differ in modification by adverbials which identify event time, or by anaphoric reference to a specific event time, if both are existentially quantified. The relevant cases are shown in (62).[7]

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[7]It has been suggested that (62a) is anomalous because the past adverbial is inconsistent with the "possible till now" implicature of the Phase Perfect discussed above, by explicitly locating the event entirely before the present. If this view can be maintained, a more simple account of the contrast between the Simple Past and the Phase Perfect might state that both existentially quantify over past times, but that the extra "present relevance" implicature of the Phase Perfect is in some way incompatible with all past adverbials. The problem is that nonspecific past adverbials are to some extent compatible with the perfect, as below.

(i)   I have long ago given up pipe tobacco.
(ii) Have you seen John recently?

(62)a. # John has left at three o'clock yesterday.

    b.   John left at three o'clock yesterday.

    c.   EtEe(three o'clock yesterday(t) & John leave(e) &

        at(e,t))

I suggest that the anomaly of (62a) is directly comparable to

the anomaly of examples in (63), but that the comparison does

not apply to (62b).

(63)a. # a fastest runner in the world

    b. # a man in the red hat over there

In (63a,b) the indefinite article existentially quantifies an

individual which is determined to be unique by the predicate

of the description, and despite their unacceptability, these

expressions are not logically illformed. There is nothing

logically problematic about asserting the existence of an

individual x such that no other individual runs faster than x,

as in (64).

(64)   Ex(runner(x) & [Ay:runner(y) and ¬(y = x)] (x runs

      faster than y))

In any case, although in most cases with the Phase Perfect we do
not know exactly when an event occurred, we do understand such an
event to be entirely past, so it isn't clear quite how a past
adverbial is to be excluded simply because it locates an event in
the past. I conclude that this alternative distinction cannot be
correct.

I suggest that (63a,b) are anomalous because they violate Grice's Maxim of Strength; given that the predicate is satisfied by only one individual, the "stronger" statement made with a singular definite description is expected and appropriate. These considerations of appropriateness apply to what is said, and in this case the rule is "Don't ass.. t existential generality of a unique individual". If we take "what is said" to mean what is explicitly expressed, we see that forms which are semantically indefinite include expressions of the form a G and the phase perfect, and forms which are semantically definite include expressions of the form the G and the progressive, but simple tensed forms, if unmarked for definiteness, do not assert either definiteness or indefiniteness in what is said. Accordingly, I suggest that simple tensed sentences modified by adverbials which identify the event time are not anomalous because, by failing to specify a value for definiteness, they do not fall foul of the Maxim of Strength.

I extend this view to the past interval extending to the present specified by the phase perfect, represented above as existentially quantified. It was shown above that this interval can be nonspecific or fully identified by a since-adverbial, as illustrated below.

(65)a. I have been to New York three times.

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b. I have been to New York three times since the day of the crash.

c. So tell me about this winter. Well, I've been to New York a lot.

Like the event times of simple tenses, the perfect interval accepts but does not require identification by adverbial or antecedent, and so I propose that the interval of a phase perfect is also introduced as a free variable and bound by existential closure.

The examples with which this chapter opened, such as Partee's "I didn't turn off the stove", are in this analysis given an interpretation equivalent to the tense logical truth condition "There is some time or other at which I didn't turn off the stove". I attribute the apparent reference to a specific time to Grice's Maxim of Relevance. So for Burge's example, "He was tired" as a response to "Why didn't John join the soccer game?" is true iff John was tired at some past time, but carries a very strong implicature that John was tired at the time of the game. The Maxim of Relevance requires that "He was tired" answer the question to which it responds, therefore the hearer assumes that John didn't join the game because he was tired, which is plausible only if he was tired at the time of the game.

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Existential Closure

I make a few brief remarks here about the somewhat mysterious notion of existential closure.

Roug.. ., a convention of existential closure is argued for where the evidence supports the presence of a variable which does not function as a constant and is not overtly bound. The Davidsonian event variable is a case in point; the Davidsonian analysis of (66a) presents an existentially quantified variable ranging over events.

(66)a. Bill kicked John.

    b. Ee(kick(e) & Agent(b,e) & Theme(j,e))

In arguing for this type of representation, Davidson emphasised the plausibility of events as individuals in the domain of discourse, supporting the presence of restricted variables e, and also made the familiar arguments from entailments for the separate statement of adverbials as predicates on e, this analysis being extended to arguments as relata to the event by other writers: explicitly, the representations of action sentences were argued to have the form in (67), for our example.

(67)   kick(e) & Agent(b,e) and Theme(j,e)

Given that the sentence (66a) asserts the existence of an event of the type described, and given that the form in (67) is an open proposition which cannot as it stands be the representation of a declarative sentence. the event variable must be bound, and the appropriate quantifier is the existential.

Now it has been suggested (see Higginbotham (1985)) that the existential quantifier binding the event variable is part of the semantics of tense morphology; here I suggest that existential closure over _events_ takes place at the level of VP, while existential closure over _times_ takes place at a higher level, perhaps at the level of tense. Existential closure over events has narrower scope than sentential negation, while existential closure over times has wider scope than negation. These distinctions are illustrated below.

(68)a. I didn't turn off the stove.

   b. E_{time} ¬Ee(Past(t) & at(e,t) & I turn off the stove(e))

   c. I haven't been to New York.

   d. E_{time} Et'Ee(I = [t",t*] & t' is a subset of I & at(e,t') & I go to New York(e))

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I point out that the use of the I variable in (68d) is a notational convenience to make the representatio,s a little clearer; both moments and intervals are times, and the existential closure over times proposed here binds all free variables over times, including not only the event time t in (68b) and the interval I in (68d), but also the nonspecific t" in (68d) which is the lower bound of the phase perfect interval.

I also claim that the existential closure over events cannot have scope over any element higher than VP, and that this follows from the fact that it is not part of the semantics of syntactic category, head or phrase. Scopal ambiguities such as the ambiguity of the familiar example in (69) arise where the syntactic operation MOVE α applies to quantified noun phrases, in this case the noun phrases **someone** and **everyone**.

(69)a.   Someone loves everyone.

   b.   ExAy(x loves y)

   c.   AyEx(x loves y)

The reading in (69c) arises because Quantifier Raising (QR) can move the quantified noun phrase **everyone** to an LF position which c-commands the LF position of **someone**. Assuming that QR is confined to syntactic elements, the quantifier introduced to effect existential closure cannot undergo QR, and thus has

narrower scope than any quantified noun phrase which has a
position higher than VP at LF. Recall that this claim was
made in Chapter 2 for the relative scope of existential
closure over events and singular indefinite direct objects, as
in "John reads a book"; the singular noun phrase must take
wider scope than the existential closure over events,
understood as plural with the habitual, giving only the
reading "There is a particular book that John reads".

The claim that existential closure occurs at the level of VP
is odd if we understand VP as a predicate, given that the
scope of a quantifier is propositional. Although a discussion
of the relevant work is well beyond the range of this thesis,
I comment here that a considerable body of current syntactic
analysis is held to support the so-called VP-Internal Subject
Hypothesis, according to which the subject of a sentence, if
it is an argument of the main verb, is base-generated in the
Spec of VP. If this hypothesis can be sustained, an existing
problem for semantics will be resolved: negation, which is
generally treated as having sentential scope, and tense and
aspect which are frequently analysed as sentential operators,
all appear at surface structure between the subject and the
verb phrase, which complicates the statement of compositional
interpretation rules (treating these elements as sentential in
scope). But if the subject is in fact generated within VP,
then VP can be plausibly given the kind of propositional

interpretation implicitly appealed to here, rather than a

predicate interpretation. This analysis assumes that

something like the VPISH is correct.

I note that it has been suggested elsewhere that an ambiguity

of sentences like "Everyone left" can be captured by

attributing variable scope to existential closure over events.

(70)a. Everyone left.

 b. EeAy(y left(e))

 c. AyEe(y left(e))

(70b) gives the reading "Everyone left together" and (70c)

gives the weaker reading compatible with a situation in which

everyone left individually. My response here is to say that

(70a) asserts only the weaker reading of (70c) which is

entailed by all the other possibilities; (70a) may be true not

only where everyone left together or when each person left

alone, but also where people left in various groupings

constituting all the permutations of the set of people.[a]

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[a]The existential closure over events outlined here applies
only to event variables in the verb phrase of a clause. Assuming
the correctness of Higginbotham's (1983) analysis of Naked
Infinitive complements to perception verbs, such as the
underlined phrase in (i), as noun-phrase-like elements denoting
events, existential closure as outlined here applies to the
seeing event but not to the leaving event.

(i) I saw John leave.

I note also that unlike quantified noun phrases, an
existentially quantified event cannot take wider scope than an
intensional verb, as illustrated below; an event which is the
target of wanting or hoping etc. can never escape the
intensional context.

(71)a.   John wants a dog.

    b.   John wants[Ex[dog(x) & John have x]]

    c.   Ex[dog(x) & John wants[John have x]]

    d.   John wants to go to Paris.

    e.   John wants[Ee[John go to Paris(e)]]

    f.* Ee[go to Paris(e) & John wants[Agent(j,e)]]

The distinction made here is that existential closure is a
quantification which does not form part of the semantics of
any syntactic element, so the question arises, is existential
binding of times part of the semantics of tense morphology, or
is it the kind of closure outlined here? In other words,
should tense be represented as in (72a) or (72b)?

(72)a. Past   Et(t < t*)

       Present Et(t = t*)

       Future   Et(t* < t)

    b. Past   (t < t*)

       Present (t = t*)

       Future   (t* < t)

All else being equal, (72a) might seem the more attractive

choice because it lessens our reliance on the admittedly

mysterious operation of existential closure, and moreover

avoids the need to claim that this operation occurs twice,

once over events and once over times. However, the choice of

(72a) may commit us to the view that existential closure over

times has variable scope according to the position of tense,

and I doubt this is correct. Assuming that QR adjoins a

quantified subject noun phrase to IP, and assuming also that

Tense is in the head of CP in a Subject-Aux Inversion

sentence, it follows that (73a) having the structure in (73b)

should have only the reading (73c), paraphrased in (73d).[9]

(73)a. Did everyone leave?

    b. [_CP_ did _i_[_IP_ everyone _j_ [_IP_ t _j_ t _i_ leave]]]

    c. [Yes/No][Et Ay Ee [y leave(e) & at(e,t)]

    d. Is it the case that everyone left at the same time?

In fact the question in (73a) ranges over all the

possibilities claimed above for the declarative "Everyone

left", and accordingly I suggest that existential closure over

times is not expressed by tense, as the variable position of

tense morphology does not correspond to variable scope of the

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[9]I consider that the nonambiguity of "Which book did
everyone give Mary?" shows that the subject noun phrase cannot be
adjoined to CP taking scope over which book, and similarly cannot
take scope over Tense in the head of CP in (73).

existential. My comments above on "Everyone left" also apply to existential closure over times; I take it that the universal **everyone** has widest scope, and thus that existential closure over times occurs at the level of Tense, even though it is not part of the semantics of tense morphology.

Existential closure may be seen as a mopping-up operation, appealed to only where it is required. Closure does not occur where it would be vacuous, as in progressive sentences where all time variables are bound by the progressive.

I regret that a thorough investigation of existential closure is beyond the scope of this work, and leave the many questions unresolved here to future research.

Adverbial Quantification

In the analysis presented here, claiming that the phase perfect existentially quantifies the event time and the progressive definitely quantifies the framed time, certain questions arise over the treatment of quantificational adverbs, which overtly quantify the same times here proposed as bound by the quantifiers in the semantics of the verb forms. The problem noted above in (46), repeated here, is

also a problem for the present analysis.

(46) I have always lived in London.

I noted that authors who analyse the perfect in examples like
(46) as universally quantifying over times must account for
the fact that overt universal quantification by **always** is not
illformed on the grounds of vacuous quantification; on the
present analysis, it appears that the event times are
existentially quantified by the perfect and also quantified by
adverbial modification in examples like (46). The same
problem apparently arises for progressive sentences, which I
review first.

The present analysis of the progressive gives (74a) the
semantics roughly paraphrased in (74b), with the definite
quantification given as part of the semantics of the
progressive form. But in (74c) it appears that the
quantificational adverb also binds the framed times, as
paraphrased in (74d).

(74)a. John was working when I arrived.
     b. [the time t: I arrived at t] (John was working at t)
     c. John was usually/always working when I arrived.
     d. [Most/all times t: I arrived at t] (John was working
         at t)

The problem is that where a quantificational adverb is present, it appears to replace the definite quantification claimed to be part of the progressive semantics.

Further examples of adverbial quantification, however, suggest a different view.

(75)   John was often/seldom/never working (when I arrived).

In discussing the distinction between adjectival and nonadjectival quantifiers in Chapter 2, I noted that quantifiers such as **many, few** and **no** have both adjectival and nonadjectival readings. The interesting point to note here is that the adverbial counterparts of these quantifiers, when modifying the progressive as in (75), have only the nonadjectival reading; for example, "John was often working when I arrived" cannot mean "There were many times when John was working and I arrived". If the adverbial quantifier actually replaced the definite quantifier in the progressive, we wouldn't expect the nonadjectival reading of the adverbial to be obligatory.

The forced nonadjectival reading of adverbs such as **often** suggsets that overtly quantified progressives should be analysed as partitives, as is explicit in the paraphrases of

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(75) and (74c) below.

(76)a. Many of the times when I arrived, John was working.

b. Few of the times when I arrived, John was working.

c. None of the times when I arrived, John was working.

d. Most of the times when I arrived, John was working.

e. All of the times when I arrived, John was working.

That is, the adverbial quantifier does indeed take scope over a definite description, and this is what forces the nonadjectival reading; thus the definite quantifier which is part of the semantics of the progressive is not replaced by adverbial quantification, but is constantly present.

Adverbial quantification with the present perfect is less clear. As shown in (77a), adjectival quantifiers with the perfect have the adjectival reading, and we could analyse these sentences two ways: either we could propose that an overt quantifier replaces the existential (77b), or we could appeal to arguments for the truly adjectival nature of purely cardinal quantification and express the quantification as a predicate (77c); but bearing in mind that the analysis must also apply to **never**, and that the form in (77d) is contradictory, the choice of (77b) is forced.

(77)a. John has often/seldom/never read a book through.

b. Many/few/no times t(John read a book through at t)

c. Et(John read a book through at t & many/few(t))

d. Et(John read a book through at t & no(t))

Replacement of the existential quantifier by an overt quantifier is also indicated for examples like (78).

(78)a. John has always taken leave in the summer.

b. John has usually arrived late.

It seems that these examples have the structure of quantified habituals holding during the past interval extending to t* specified by the present perfect. The first step is to analyse (78a,b) as in (79a,b).

(79)a. E_{time}(I = [t,t*] & Es[at(s,I) & John always take leave in the summer(s)])

b. E_{time}(I = [t,t*] & Es[at(s,I) & John usually arrive late(s)])

The second step is to analyse the quantified habitual state. The relationship between habitual states and their component events was expressed in Chapter 2 by a meaning postulate, repeated here in (80).

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(80)   Where P is a predicate true of events,

       If EIEs(at(s,I) & P(s)) then

       EtEe(t is a subset of I & at(e,t) & P(e))

Adverbially quantified habituals were discussed in Chapter 2,

and it was shown there that quantification may be over events

or event times.   It was also shown that the restrictive clause

for nonadjectival quantifiers may be drawn from different

parts of the sentence, choosing among the verbal predicate

itself and adverbials of place, manner, etc.   I add the

meaning postulates below for quantified habituals.

(81)a. Nonadjectival quantifiers

       Where P is a predicate true of events,

       If EIEs(at(s,I) & Q(P(s)) then

       (i)   [Qt:F(t)](Ee[P(e) & at(e,t)])   or

       (ii)   [Qt:Ee[P(e) & at(e,t)](F(t))   or

       (iii)   [Qe:P(e)](F(e))   or

       (iv)   [Qe:F(e)](P(e))

    b. Adjectival quantifiers

       Where P is a predicate true of events,

       If EIEs(at(s,I) & Q(P(s)) then Qe(P(e))

These conditions are illustrated below.

(82)a. (from 81.a.i)

      John always takes leave in the summer.

      [At:the summer(t)](Ee(John take leave(e) & at(e,t)))

  b. (from 81.a.ii)

      John always takes leave in the summer.

      [At:Ee[John take leave(e) & at(e,t)]] (in the

      summer(t))

  c. (from 81.a.iii)

      John usually arrives late.

      [Most e:John arrive(e)](arrive late(e))

  d. (from 81.a.iv)

      John usually walks to work.

      [Most(e):John go to work(e)](walk(e))

  e. (from 81.b)

      John often paints in oils.

      Many e(John paint in oils(e))

Where quantified habituals appear in the present perfect,
analysed as in (79a,b), with the semantics of adverbial
quantification in habituals as given by the meaning postulates
(81a,b), the existential quantification over event times
proposed elsewhere for the present perfect is simply absent.
This use of the present perfect merely establishes the
temporal range at which the habitual state holds. This is
particularly clear with habituals in which adverbial
quantification binds events and event times are not

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represented at all.

This concludes the main discussion of the temporal

characteristics of the progressive. In the next chapter I

address the problem of the Imperfective Paradox.

CHAPTER 5

THE IMPERFECTIVE PARADOX

In the discussion of the boundedness or telicity of verbal
predicates (or the boundedness of events as described by
verbal predicates), it has long been noted that telic and
atelic predicates have different entailments: a progressive
sentence with an atelic predicate entails a corresponding non-
progressive sentence, but the entailment fails with telic
predicates, as illustrated below.

(1)a.   John was walking $\rightarrow$ John walked

   b.   John will be walking $\rightarrow$ John will walk

   c.   John is walking $\rightarrow$ John will have walked

   d.   John was building a house $\nrightarrow$ John built a house

   e.   John will be building a house $\nrightarrow$ John will build a
house

   f.   John is building a house $\nrightarrow$ John will have built a
house

Because of these different entailments, certain formulations
of the semantics of the progressive, intended to apply to both
telic and atelic progressives, give rise to paradox. Briefly,
the problem is this: the truth conditions for (2a) cannot be
stated in terms of the truth of (2b) at some time t, as (2a)

may be true even though there is no time t at which (2b) is true.

(2)a.   John is building a house

   b.   John builds a house

In the recent literature the problem is first encountered (and noted) in the analysis of Bennett and Partee (1978:13), quoted in Chapter 2 and repeated here.

(3)   (PROG α) is true at t iff there is an interval

         I such that t is a proper subset of I, t is not

         a final subinterval of I, and α is true at I.

The problem with telic predicates is clear: where "John be building a house" is true at t, on this analysis there is an interval I at which "John build a house" is true, entailing that the house-building has been or will be completed.

I point out here that my analysis of the progressive has the same problem, as below.

(4)   "John is building a house" is true iff

         [the t:Present(t)](Ee[at(e,t) v Et′[t is a

         proper subset of t′ & at(e,t′)]] & John build a

         house(e))

The relevant part of this definition, "Ee(John build a house(e))", asserts the existence of a house-building event at some time.

There are three main lines of response to this difficulty. Dowty (1977,1979) appeals to possible worlds to avoid the entailment of actual event completion, while Bennett (1977,1981) proposes a difference in the types of intervals at which sentences are evaluated, circumventing the troublesome entailments. The approach which appears to be the most popular, a version of which I will adopt here, holds that a progressive predicate apparently formed from a telic base, such as **building a house**, is not simply an inflected form of **build a house**, but is in fact a distinct predicate true of processes rather than events. This view is proposed by Vlach (1981), Parsons (1990) and Higginbotham (1990), and suggested by Bennett and Partee in a later note to their 1978 paper.

I turn now to a fuller discussion of each of these approaches.

Michael Bennett: Closed and Open Intervals

The central trick in Bennett's (1977,1981) treatment of the

imperfective paradox is to express telicity as a property of
intervals of time, rather than as a property of events or of
the predicates true of events. His central assumptions and
definitions are quoted here.

(5)a.   "We represent time by the set of positive and
        negative real numbers."
        "..time is DENSE (given any two moments of
        time, there exists another moment of time that
        lies between them);"

                                        (1977:13)

   b.   "Let us say that activities are represented by
        OPEN intervals (no endpoints) and that
        performances are represented by CLOSED
        intervals (two endpoints). It is important to
        note that BOTH performance verb phrases and
        activity verb phrases can be true of
        individuals at both open and closed intervals -
        that is, individuals can be in the extension of
        either kind of verb phrase with respect to
        either kind of interval of time."

                                        (1981:14)

   c.   a closed interval [t1,t2] = {t:t1≤t≤t2}
        an open interval (t1,t2) = {t:t1<t<t2}

Given that performances are represented by closed intervals

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according to (5b), the truth definition in (6) for "Jones has left" appeals to a closed interval as expected.

(6)   Jones has left is true at interval of time I if

        and only if I is a moment of time, and there

        exists an interval of time I´ (possibly a

        moment) such that I´ is a closed interval,

        I´<I, and Jones is in the extension of leave at

        I´.   (1981:14)

From here it is a simple matter to state the truth conditions for "Jones is leaving" as in (7); Jones is in the extension of leave at an open interval, from which it does not follow that Jones is ever in the extension of leave at a closed interval, and thus "Jones was leaving" does not entail "Jones has left".

(7)   Jones is leaving is true at interval of time I

        if and only if I is a moment of time, and there

        exists an interval of time I´ such that I´ is

        an open interval, I is included in I´, and

        Jones is in the extension of leave at I´."

                                     (1981:15)

As Parsons (1990:CH 9) makes clear, this distinction is difficult to grasp intuitively; introspection about different intervals during which happenings occur yields no independent

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sign by which we recognise the interval in question as open or closed. Some understanding of the proposal rests in the end on an acceptance of the stipulation that atelic events occur at open intervals and telic events occur at closed intervals. Parsons' point here is that Bennett provides no explanation of telicity, and does not successfully state telicity as primarily a property of intervals, as the associated events are still the key to the distinction.

The counter-intuitive character of the closed/open distinction is also illustrated by the following case. Imagine that a celebrated caricaturist is to give a timed demonstration of his skill, drawing a caricature of John Silber in one minute, while an observer operates a stopwatch. At a moment t, the artist begins to draw and the observer starts the watch. At t', such that t' is exactly one minute after t, the artist completes the final stroke and the observer stops the watch. Thus "The artist draws a caricature" is true at an interval I, and "The hand of the stopwatch moves" is true at I'. Because the first sentence is telic we know that I is closed, and because the second sentence is atelic we know that I' is open. It must follow from this that I cannot be identical to I', even though I and I' are of the same length and exactly coincide.

But I think Bennett's analysis faces a more fundamental

problem. To understand the truth definition for "Jones is

leaving" we must understand what it is for Jones to be in the

extension of **leave** at an open interval, and no doubt our

understanding of this should be informed by the usual view of

the extension of predicates. Simply, the extension of **red** is

the set of red things, the extension of **run** is the set of

runners, and the extension of **build a house** is the set of

individuals who build a house. Bennett's comments quoted here

indicate that the notion "extension of a predicate" is to be

understood as usual.

"The intuition that motivates our analysis is that if

John is in the extension of **build a house** at I, then John

starts to build at the beginning of I, he is building

throughout I, and he finishes building a house by the end

of I."   (1977:502)

But of course the imperfective paradox simply IS the fact that

is building a house may be true of Jones even though he never

builds a house. That is, so long as Jones' membership in the

extension of **build a house** is considered with respect to open

intervals, whether or not he builds a house is not criterial;

moreover, we have no idea what does justify the inclusion of

Jones in the extension of **build a house** at an open interval.

Clearly some constraint must be placed on Jones: some

predicate must be true of him at the open interval in question. The truth of "Jones was building a house" must rest on the truth of "P(j)" at an open interval, and this P is not the predicate **build a house** mentioned in Bennett's remarks above. Let P' stand for **build a house**, and P for the predicate true of Jones iff "Jones be building a house" is true. Then "P(j)" does not entail "P'(j)", regardless of the times of evaluation, and thus the paradox is resolved without any appeal to different types of interval. We can maintain that "John was walking" entails "John walked", where **walk** appears in both sentences, but "John was building a house" does not entail "John built a house" because the sentences contain distinct predicates.

Bennett also comments (1981:17)

> It might be wondered what is the intension of **build a house**. It is something like the "union" of the activity of building a house and the performance of building a house. I say "something like" because maybe there is more in the intension than just the "union"...In any case, given the intension of **build a house**, we can extract both the activity and the performance.

Here the intension of **build a house** is somehow composed of an activity and a performance, both "extractable". As Parsons

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stresses, the distinction between closed and open intervals as appealed to by the theory depends on the distinction between activities and performances, so the activity/performance distinction remains basic and cannot be reduced to a distinction between interval types for fear of circularity. Taking our predicates P and P' above as true of the activity of building a house and the performance of building a house respectively, both "extractable" from the intension of **build a house**, I conclude that at bottom Bennett's view is a variant of the two-predicates analysis to be discussed further below.

The alternative interpretation of Bennett, that the same predicate is involved in "Jones built a house" and "Jones was building a house", centres the analysis on the assertion that where the latter sentence is true, Jones is in the extension of **build a house** at an open interval, which as it stands is either unintelligible or simply false.

Dowty: The Inertia Worlds Analysis

The core of Dowty's analysis is the view that "the progressive is not simply a temporal operator, but a kind of mixed modal-temporal operator". He proposes that a progressive sentence is true at a time t iff the corresponding non-progressive

sentence is true at a time t' properly containing t in all
inertia worlds, where an inertia world, or I-world, is one
which is identical to the actual world up to and including t,
and thereafter meets certain conditions: in Dowty's words "in
which the future course of events after this time [i.e. the
time t KK] develops in ways most compatible with the past
course of events", or in which events transpire as expected
without any interference, or in which the "natural course of
events" takes place.

Dowty's definition for the progressive is given in (8): the
function **Inr** assigns to each world-time index the set of I-
worlds for that index.

(8)   [PROG a] is true at $<I,w>$ iff for some interval
        I' such that I is properly included in I' and I
        is not a final subinterval for I', and for all
        w' such that $w' \in Inr(<I,w>)$, a is true at
        $<I',w'>$.

With this definition, the truth of a sentence such as "John is
building a house" entails the existence of a completed house-
building only in the I-worlds, never in the actual world, and
this accords with the intuition that if John was building a
house he was doing something which in certain circumstances
would have developed into a completed house-building; the I-

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worlds are those in which the certain circumstances hold.

In the next section I will discuss (8) further and derive from it what I shall call the basic counterfactual analysis.

The Basic Counterfactual Analysis

A difficulty with Dowty's theory, as he acknowledges, is the problem of more precisely characterising what it is to be an I-world, particularly in those cases where a progressive sentence with a telic predicate is true of an event which is never actually completed, and thus the actual world cannot be an I-world for these cases.

Examples such as "Jones was writing a book when he died" suggest that I-worlds are those in which events in train at the time in question continue uninterrupted, but even here there are difficulties: if Jones was crossing the street when a truck hit him, it is true that his crossing the street was interrupted, but that is because the truck's progress on an intersecting path continued uninterrupted, or perhaps in the earlier example, Jones' bookwriting was interrupted because his illness continued to develop uninterrupted, and indeed reached its natural conclusion; this point is made by Vlach

(1981:286). So here we see that an I-world is not one in which events in general maintain their present or natural course, but one in which the event described by the predicate continues its present course.

This point leads me to a criticism of Dowty's view made by Parsons (1990:CH 9). Parsons argues that Dowty's theory cannot succeed unless the actual world is always excluded ' om the I-worlds on the following grounds: at many times, if not all times, some actual event is in progress which will be completed in actuality, and accordingly, if the actual world may be an I-world, it is an I-world for those times. But at those same times surely other events fated to remain incomplete are also in progress. If the actual world is deemed an I-world for those times, progressive sentences describing the events which will remain incomplete are incorrectly judged false, because those events are not completed in the I-world which is the actual world. For example, suppose that Mary is writing a letter at t, Jones is eating an apple at t, and Mary finishes her letter a little after t. The actual world is an I-world for t because the letter-writing is completed in it. Therefore, "Jones is eating an apple" is true at t only if Jones eats an apple in all I-worlds including the actual world, thus false if Jones in fact abandons his apple, which is the wrong result.

Parsons suggests that the actual world must never be an I-world, but this has an undesirable consequence. On this view, if it is true that Jones built a house, nevertheless "Jones was building a house" is true only by reference to a possible house-building, but not by reference to the event that actually occurred. That is, the entailment (for accomplishment predicates) from "Jones built a house" to "Jones was building a house" is not valid if the actual world cannot be an I-world. This point is also made by Higginbotham (1990).

As my remarks above indicate, I consider that a better approach to Parsons' problem is not to stipulate that the actual world is never an I-world, but to relativise I-worlds to the time and also to the event as described by the predicate of the progressive sentence, and thus the contents of I-worlds which can be appealed to are restricted to specified events.

This view is reminiscent of certain comments in Kripke (1980) on how possible worlds are to be thought of. Kripke argues that in many cases the problem of transworld identification is a pseudo-problem, as elements of the counterfactual situation, including named individuals, are stipulated by the speaker, not somehow waiting to be discovered and examined. He writes (1980:18) "the counterfactual situation could be thought of as

a miniworld or ministate, restricted to features of the world relevant to the problem at hand", and also (p.44) "a possible world is given by the descriptive conditions we associate with it". Although Kripke was addressing a different problem, I take these comments to apply to the issue at hand; if "Mary be writing a letter" is true at t, there are I-worlds for t in which Mary finishes writing that letter, but they cannot be examined for the completion or non-completion of other events in progress at t; all we know about other events is that they proceed in some way compatible with the stated content, in this case Mary's finishing her letter. Although the actual world may be an I-world it cannot in that guise present its other nonstipulated contents to view.

I wish to push a little further the notion that possible worlds (or counterfactual situations), including I-worlds, are given by the descriptive conditions we associate with them. The counterfactual situation given by an if-clause such as "if I were stinking rich" is just a miniworld in which I am stinking rich, but what are the descriptive conditions associated with I-worlds?

I have already said that descriptions of the kind "in which the natural course of events takes place" are too broad, and that the "natural course of events" must be relativised to the event described by the progressive predicate.

Note also that particular problems with characterisations of
I-worlds are easily detected because we know _exactly_ what
result we want to achieve with our notion of I-worlds.
Consider the examples below.

(9)a.   Jones is beating Muhammed Ali.

   b.   Jones is writing a symphony.

   c.   Jones is reciting the Real Estate Guide while standing
        on a sheet of very thin ice.

If the Jones of (9a) is a slightly-built middle-aged amateur
boxer, the natural or expected outcome of the event now in
progress is that Jones will very shortly be out for the count.
If the Jones of (9b) is a 92-year-old composer in frail health
the expected outcome, no doubt expected by Jones himself, is
that he will die before he finishes his symphony. Again in
(9c), the natural or expected outcome, if Jones weighs 250
pounds, is that he will fall through the ice before he
finishes his recitation. These examples are somewhat like the
crossing the street example above, except that here the lack
of completion is natural or expected according to our
intuitions about the event itself.

I stress that the reason we can see that I-worlds for the
examples in (9) are not well described as those in which the
event unfolds naturally is that we already know what does

happen in the I-worlds. We are in no doubt that the I-worlds
for the examples in (9) are worlds in which the sentences in
(10) are true at a specified time. This is the result that
definitions of I-worlds are supposed to yield.

(10)a. Jones beats Muhammed Ali.

   b. Jones writes a symphony.

   c. Jones recites the Real Estate Guide while standing on a
      sheet of very thin ice.

Now we see clearly what the descriptive conditions are that
give the counterfactual situations termed I-worlds: an I-world
for <S,t,w>, where S is a progressive sentence, is a world w'
identical to w up to and including t, and in which S' is true
at a time containing t, where S' is the nonprogressive variant
of S. The descriptive conditions on inertial outcomes are
determined by S'.

A second important point is that on this view, all I-worlds
for a given sentence are identical in the relevant respects,
because the descriptive conditions associated with them fully
stipulate the relevant respects.

Now Dowty's definition states the truth condition for a
progressive sentence in terms of the corresponding
nonprogressive sentence being true in all I-worlds, but

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following the line I pursue here, that I-worlds just are those
worlds in which the nonprogressive sentence is true, the issue
becomes whether or not there are such worlds, also satisfying
the rest of the definition. If we keep universal
quantification over I-worlds all progressive sentences are
trivially true. Accordingly, substitute existential
quantification over I-worlds for the universal, bearing in
mind that all I-worlds, being given by the descriptive
conditions associated with them (the nonprogressive variant of
S) are necessarily identical in the relevant respects, so what
is true for any I-world is true for all.

The reader will note that if the changes suggested so far are
incorporated into Dowty's definition, one of the clauses which
I assert to be definitional for I-worlds is stated twice, as
in (11).

(11)   (PROG α) is true at $\langle I,w \rangle$ iff for some interval
        I' such that I is properly included in I',
        there is a world w' such that w and w' are
        identical up to and including I, and α is true
        at $\langle I',w' \rangle$ and α is true at $\langle I',w' \rangle$.

So retain the clause which is substituted for the definition
of I-worlds and drop the extra condition, giving (12), where
w' is merely specified as a possible world satisfying the "I-

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worlds" condition.

(12)   (PROG a) is true at $\langle I,w \rangle$ iff for some interval

I' such that I is properly included in I',

there is a possible world w' such that w and w'

are identical up to and including I, and a is

true at $\langle I',w' \rangle$.

Here the notion of inertia worlds as natural futures has more
or less disappeared, with its attendant difficulties, and the
question is whether too much has been lost. We might judge
that the notion of continuation or development has been lost.
On this point, granting that (12) is more transparently a
counterfactual analysis than Dowty's original, here I turn to
criticisms levelled at Dowty's analysis, understood as a
counterfactual analysis.

The criticism brought by Vlach (1981) and Higginbotham (1990)
is expressed by Higginbotham as follows: the emphasis is mine.

   Dowty's perspective is that the progressive draws its
   truth conditions from the truth conditions of certain
   counterfactuals: Mary was indeed crossing the street when
   she was hit by a vehicle because, had it not been for the
   vehicle, she would have crossed the street.

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..counterfactual interpretations of the progressive
cannot distinguish between cases where appropriate
counterfactuals are simply supported by circumstances
from cases where their support derives from the special
circumstance that some process or processes of
appropriate sorts are underway.

I argue that this criticism doesn't take sufficient account of
the conditions "w and w' are identical up to and including I,
and α is true at $\langle I',w'\rangle$". In the tense-logical framework
truth conditions were given earlier in terms of the truth of
simple untensed sentences at instants of time, but this
approach could not deal with accomplishment predicates. It
seems impossible to fix any instant as an instant at which a
sentence like "Jones builds a house" is true. Intervals were
introduced primarily to deal with this difficulty (see Bennett
and Partee (1978)); an accomplishment sentence is true at an
interval I, where the described event begins at the lower
bound of I, continues throughout I and terminates at the upper
bound of I. Bennett's explanation of "true at I" was quoted
in the preceding section. A further characteristic of this
use of intervals is that where a sentence like "Jones builds a
house" is true at I, it is not true (of the same event) at any
interval properly included in I or properly including I; I is
the unique time of truth for that sentence.

Accordingly, to say that α is true at I´ is to say that the event described by α exactly occupies I´. Recalling also that the time I at which a progressive sentence is evaluated is properly included in I´, and that w and w´ are identical up to and including I, we see that if the progressive is true at I necessarily the event described by α is in progress at I. If "Mary was crossing the street" is true, Dowty´s analysis states not that she would have crossed the street, but that she would have finished crossing the street.

This strict interpretation of the clauses I have emphasised also comes into play with certain examples which suggest that my revised definition in (12) is far too weak. Assume that Mary has begun a journey from Boston to Hawaii, with stops at Chicago and Los Angeles. During the first leg of the journey (13) is true.

(13) Mary is flying to Hawaii

But there are worlds in which her journey may have various different outcomes, as in (14).

(14)a. In w1, Mary´s plane is hijacked at Chicago and taken to Quebec.

b. In w2, Mary´s plane is blown offcourse by a freak storm just after leaving Chicago and makes an emergency

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landing at Miami.

c. In w3, Mary's plane is hijacked and taken to Fiji.

It seems then that at the time above at which "Mary is flying to Hawaii" is true, all of (15) are also true according to the definition in (12), counter to intuition.

(15)a. Mary is flying to Quebec.

b. Mary is flying to Miami.

c. Mary is flying to Fiji.

On the analysis in (12) the times at which (15a-c) are true (in the actual world) are times falling within the interval at which (16a-c) are true in the I-worlds, respectively.

(16)a. Mary flies to Quebec.

b. Mary flies to Miami.

c. Mary flies to Fiji.

As I have pointed out elsewhere, the intervals at which (16a-c) are true are the intervals at which the reported events occur, or in other words, the event times. So the issue is deciding what exactly are the event times of Mary's flight to Quebec, her flight to Miami and her flight to Fiji. Although the judgments are not obvious, my intuition is that Mary's flights to Quebec and Miami do not begin with her departure

from Boston, but begin at the change of course, and so (15a) and (15b) are not true at any time on the first leg of the journey. The flight to Fiji gives a rather different judgment because one flies to Fiji from Boston via Los Angeles; Mary's flight to Hawaii doesn't involve a change of course but is a continuation of the planned flight. It seems that Mary's flight to Fiji includes the earlier legs of the journey and so (13) and (15c) are both true at all times during the Boston to Chicago leg. At those times (Boston to Chicago) I consider all of (17) to be true.

(17)a. Mary is flying to Hawaii.

　　b. Mary is flying to Chicago.

　　c. Mary is flying to Los Angeles.

　　d. Mary is flying to Fiji, although she doesn't know it.

　　e. Mary is going to fly to Quebec, although she doesn't know it.

　　f. Mary is going to fly to Miami, although she doesn't know it.

Examples like these are difficult to evaluate, but I think the revised analysis is correct in locating the indeterminacy in the indeterminacy of the boundaries of events under given descriptions. If we can confidently determine the boundaries of the event as described and place t, the evaluation time for the present progressive sentence S, within those boundaries,

we will judge S to be true at t. If we decide that t does not

fall within the event boundaries we will judge S to be false

at t. If we cannot determine the event boundaries well enough

to include or exclude t, we will be unable to decide whether S

is true or false at t. Whether or not there is a fact of the

matter, S is true at t or S is false at t, rests on whether or

not the event as described has sufficiently precise bounds.

In summary, I consider the real purpose of I-worlds is to

capture the notion of (i) a possible given outcome to an event

(ii) which is in progress at a specified time in actuality,

and the modified definition repeated below states these

conditions.

(12)   (PROG α) is true at $\langle I, w \rangle$ iff for some interval

        I' such that I is properly included in I',

        there is a possible world w' such that w and w'

        are identical up to and including I, and α is

        true at $\langle I', w' \rangle$.

On this definition, "John is building a house" is true iff an

event is now in progress of which it may eventually be true to

say "John has built a house".

I hold (12) to be the basis of any analysis in which the truth

condition for a progressive sentence is stated in terms of the

truth of the corresponding nonprogressive sentence, with the
appeal to possible nonactuality as a necessary twist to escape
the paradox. I call (12) the basic counterfactual analysis
(BCF).

I will show below that the truth of the right hand side of
(12) is in some cases not necessary for the truth of (PROG α),
and in some cases not sufficient for the truth of (PROG α). I
will argue that these problems with the BCF indicate that
progressive predicates of durative events should be analysed
as predicates of actual processes, as proposed by the authors
cited above.

Achievement Predicates

In the Vendler classification outlined in Chapter 1,
achievement predicates are true of events considered to be
momentary or punctual, and accordingly a sentence with an
achievement predicate is in a tense-logical system held to be
true at an instant rather than a longer interval. Bearing
this in mind, we see that predicates which are generally
classified as achievements present a problem for the BCF where
they appear in the progressive, as in (18).

(18)a. Flight 246 is now arriving at Gate 20.

b. Jones is dying.

c. I'm deciding what to do about this.

d. Mary is winning. [1]

On the counterfactual analysis, the truth condition for (18b),
for example, is as in (19).

(19)   "Jones be dying" is true at $\langle I, w \rangle$ iff for some

interval I' such that I is properly included in

I', there is a possible world w' such that w

and w' are identical up to and including I, and

"Jones dies" is true at $\langle I', w' \rangle$.

The difficulty is in the last clause: the simple form of an

achievement verb has only the punctual reading, and

accordingly the I' at which "John dies" is true must be an

instant, not a larger interval properly including I, the time

which falls during Jones' mortal illness. The situation is

illustrated in (20).

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[1] I pointed out in Chapter 3 that progressives of achievement
predicates can be true of punctual events under certain
circumstances. In this section I consider only achievement
progressives true of durative evnts, claimed here to be all
processes.

(20)
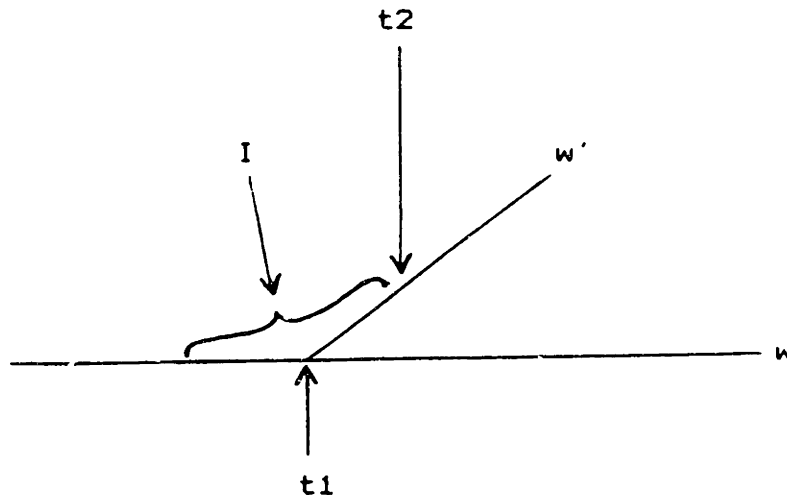
Assume that t1 is a time at which "Jones is dying" is true, I is a period of his mortal illness, and t2 is the moment of his death. The BCF requires that I, an interval properly including t1, be a time at which "Jones dies" is true, but "Jones dies" is true only at t2. These are the cases for which the truth of the right hand side of the BCF is not necessary for the truth of (PROG a), and progressives of this kind are incorrectly judged false. Note that if Dowty's analysis was truly indistinguishable from a futurative counterfactual it would too generously judge such sentences as true, as has been claimed by critics. I will return to this point below.

Processes

Vlach (1981), Higginbotham (1990) and others emphasise that the progressive must be analysed as true of a process in progress in the actual world, and to clarify the discussion Higginbotham appeals to Pustejovsky's (1988) analysis of event structures. In Pustejovksy's theory, an accomplishment event E is composed of a process e1 and a resultant state e2, represented as [$_x$e1 e2]. For example, the accomplishment **build a house** is composed of the process e1, which is "building on" and the resultant state e2, which is the existence of the completed house. With accomplishment predicates, Higginbotham argues that the progressive is true of events <u>of the kind of e1</u>. This distinction between processes described by progressive predicates and whole events of which the processes may form a part is sharpened with achievement predicates. Although the progressive is clearly true of a process, the corresponding simple tense predicate is not true of the accomplishment-like event the process may be part of, but only of the final momentary transition.

The difference between progressives of accomplishment predicates and progressives of achievement predicates is also illustrated by the contrasts in (21).

(21)a. ? Jones is painting the fence; he will paint the fence

         this afternoon.

   b. ? Mary is writing a letter and she will write it soon.

   c.   Jones is dying and will surely die this week.

   d.   I'm deciding what to do about this; I will definitely

         decide today.

   e.   Flight 246 is now arriving at Gate 20; it will arrive

         at the gate in exactly two minutes.

In (21c-e) the progressive is clearly true of a process of the

kind that typically leads to a particular outcome; in (21c)

Jones is mortally ill, in (21d) I am deliberating, and in

(21e) Flight 246 is approaching Gate 20. Similarly, if Mary

is winning the race she is leading the field, and if Tensing

is reaching the summit he is (closely) approaching the summit.

There is a temptation to dismiss progressives of apparent

achievements as irregular and misleading, on the grounds that,

for example "winning the race" really means "leading the

field" and thus isn't a canonical progressive because it isn't

formed from the base win the race. We could say that "winning

the race" is some sort of oddity formed from a base predicate

win*, which only appears in the progressive.

The view I take here (see also Vlach (1981)) is that "winning

the race" is an exemplary progressive precisely because it

emphasises that progressives are predicates of processes, with the special circumstance that such processes may be "named after" events of which they typically form a part, or events to which they typically lead. This "naming after" is a kind of polysemous adaptation based on comparison. I understand Bennett and Partee (1978:16) to be making a similar point in suggesting that "John is building a house" in some uses stands for one of the following.

(22)a. John is working to build a house.

b. John is attempting to build a house.

c. John is trying to build a house.

Adapting an achievement predicate to denote a process rests on the assumption that that process typically leads to an event of the kind of the achievement, the inverse supposition being that the achievement predicate describes an event which typically has a process of a certain kind as its prelude. Thus **reach the summit** and **arrive** are true of events which are preceded by a process of approaching.

Predicates true of punctual events which do not have a typical prelude process cannot be used to denote a process, even though some particular process which will probably lead to an outcome of the relevant kind is in progress. For example, if Jones is trying on a new suit which has a prominent flaw on

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the left sleeve, and is closely studying the suit in the mirror, he will almost certainly notice the flaw, but nevertheless one cannot say "Jones is noticing the flaw" at the time when he is looking in the mirror but hasn't yet noticed it. I assume that this is because noticing does not typically have a prelude process. In the same way, if Jones is absently staring at a man he knew very well some years ago, and will surely recognise him at any moment, I cannot say "Jones is recognising him".

On the other hand, "Jones will be back in a minute, he's finding his coat" can be said at a time when Jones is looking for his coat, presumably because findings are considered to be typically preceded by searches.

To say that a certain process typically precedes a punctual event of a given kind is not to say that the process always precedes an event of that kind. Although death is typically preceded by a period of mortal illness or injury, it need not be. If Jones was shot while in perfect health and died instantly, "Jones died" is true while "Jones was dying" is not; and similarly, if Mary is in second place throughout the race, draws level with the leader in the last few feet and wins by a photo finish, "Mary won" is true but "Mary was winning" is not. The failure here of the entailment noted above for accomplishment predicates further indicates that

"winning" and "dying" are true of processes which can be kept distinct from the events denoted by **win** and **die**, although the former are "named after" the latter.

It is not sufficiently restrictive to say that an achievement predicate true of events of a given kind can be adapted to denote a process which typically precedes events of that kind; in general the process must be compared with the typical immediate prelude to a certain outcome. ("Winning" is exceptional here.) So although aeroplane flights almost always end in landings, "The plane is landing" is true of the last part of the plane's descent, and not of earlier parts of the flight. Although human lives always end in death, we can only say "Jones is dying" when a process of bodily decay judged to be irreversible is established.

This point is also made by Vlach (1981) and others who criticise Dowty's analysis, understood as a futurative counterfactual analysis. As I argued above, Dowty's definition, accurately read, is not subject to that criticism, but I agree that Dowty's (1979:147) discussion of the coin-flipping example might well lead one to believe that Dowty intended to propose a futurative counterfactual analysis. Briefly, Dowty discusses evaluating the sentences in (23) at a time when a fair coin has been flipped and has not yet landed.

(23)a. The coin is coming up heads.

    b. The coin is coming up tails.

My view is that neither (23a) nor (23b) is true while the coin
is spinning in the air because "come up heads/tails" is an
achievement predicate which doesn't adapt to denote a process,
or perhaps, if taken to be an accomplishment predicate it is
true only of the process after the coin has touched the
catching surface (or will touch it within one spin). While
the coin is spinning, it isn't "coming up" at all. Dowty
finds both (23a,b) false on the grounds (if I understand him
correctly) that because chance apparently provides both
outcomes equally, neither can count as inertial, but he does
not appeal to my grounds, as above, that "The coin comes up
heads/tails" are true at a time which does not properly
include the time of evaluation for the progressive. Thus
perhaps in a moment's inattention Dowty treats his analysis as
a futurative counterfactual analysis, although it is clear
from his (1979:154-163) discussion of the futurative
progressive that this is not his intention. There he suggests
that the basic progressive analysis can be extended to the
futurative progressive only if the planning or programming of
a future event required for the futurative progressive is
understood as an early part of the event itself, which is then
judged to be in progress at the time of evaluation for
(PROG α).

I turn now to examples of the second kind, for which the truth of the right hand side of the BCF is not sufficient for the truth of (PROG α). These examples also indicate the need to focus our attention on the actual process in progress.

Progressives of Telics with Expressions of Quantity

Mittwoch (1988:226) remarks that theories which ascribe an activity reading to progressives of accomplishment predicates are supported by sentences such as (24).

(24) John was drinking three cups of tea when I arrived.

The interesting point here is that (24) describes a situation in which John has three cups of tea poured and is sipping intermittently from all of them. An alternative reading, that John drank three cups of tea in succession and the speaker arrived at some time during that complex event, is not available. The counterfactual analysis (either version) allows both readings and does not distinguish between them, as in the truth condition below.

(25)   "John be drinking three cups of tea" is true at

         <w,I> iff for some interval I' such that I is

         properly included in I', there is a possible

         world w' such that w and w' are identical up to

         and including I, and "John drinks three cups of

         tea" is true at <w',I>.

The problem is sharpened in Mittwoch's other examples below,

which have no acceptable reading.

(26)a. # It was raining for two hours when I arrived.

     b. # The level of the lake was rising ten feet when I

         arrived.   ²

Mourelatos (1978:428) notes the same property with similar

examples as in (27).

(27) Jones was painting the Nativity twice.

Mourelatos comments that (27) may have the reading "Jones was

painting the Nativity on two occasions", in which **twice**

quantifies the times of evaluation, and otherwise has possibly

the reading "Jones was painting the Nativity for the second

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²Perhaps (26b) is acceptable in the context that there is a
kind of ten-feet-rising, say if a system of locks allows the
keeper to determine how far the river will rise. Ignore this
kind of context for the moment.

time", as in a suggested reading of the Santa Claus song "He's making a list, he's checking it twice", understood to mean "He's checking it again". The same point is clear; the progressive is not judged as true at a time t which falls within an interval containing two paintings of the Nativity or two checkings of the list.

One might suppose that sentences like (24) can be dealt with if we assume that the direct object has wider scope than the progressive, as in (28).

(28)   **John be drinking three cups of tea** is true at
       $\langle w, I \rangle$ iff (three x:cup of tea(x)), for some
       interval I' such that I is properly included in
       I', there is a possible world w' such that w
       and w' are identical up to and including I and
       John drink x is true at $\langle w', I' \rangle$

This formulation requires that each individual event of John drinking one of the cups of tea must occupy I' (recall my comments above on the clause "S is true at I'") and forces the correct reading, that John was drinking each cup of tea throughout I' in w', and therefore at I in both w and w'.

The proposal accounts for the obligatory reading of (24), but does not account for the fact that the other examples above,

for which Quantifier Raising is implausible, simply have no
acceptable reading. That is, if the reading of (24) is solely
a result of Quantifier Raising, the sentences repeated below,
in which the underlined phrases do not raise, are falsely
predicted to have the "narrow scope" reading on which the time
of evaluation of the progressive falls within the possible
larger event; something more needs to be said.

(29)a. # The level of the lake was rising <u>ten feet</u> when I
          arrived.

   b. # The river was rising <u>to the 1947 flood marker</u> when I
         arrived.

I note in passing that the difficulty with expressions of
quantity and measure does not invariably arise with **all**.
Taylor (1977) discusses the truth condition for (30a),
assuming that it can be true of a complex event of sequential
polishings, and I agree.

(30)a. John is polishing all the boots.

   b. John is polishing every boot.

   c. All the boots are being polished.

   d. Every boot is being polished.

On the other hand, (30b) is decidedly odd and seems to be true
only of simultaneous polishings, perhaps by the aid of a boot-

polishing machine. The contrast is clearer in (30c,d) where
(30d) seems to be true of a situation in which each boot is
being polished simultaneously by a different person. [3]

It seems that all is exceptional in this respect, and in any
case the general problem is not confined to quantified noun
phrases, and an analysis in terms of relative scope is
insufficient.

The relative scope of the progressive and direct objects is
raised by Parsons (1990:CH 9) in discussing an issue which I
consider to be relevant to the problem at hand. I will take
up Parsons' point here.

Unfinished Objects

The central problem of progressives of telics, that the
existence of a complete event of the kind described is not
entailed, is also held to apply to direct objects of verbs of
creation such as **build, draw, make,** etc. Recall that in

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[3]Cresswell ((1977), cited by Tedeschi (1981:250)) claims
that (30d) has the sequential polishings reading, and argues from
this that the progressive is a sentential operator, as it must
have scope over the subject. See Tedeschi (op.cit.) for
criticisms of this view.

Pustejovsky's theory of event structure, the accomplishment
build a house is composed of a process and a resultant state,
the state being the existence of a completed house. In an
event where the process alone is actual, and the resultant
state doesn't hold, it would seem that no house ever exists.
Parsons notes that one might be tempted to respond to this
difficulty by using the counterfactual analysis and
stipulating that the progressive always takes scope over the
object of verbs of creation; that is, truth conditions must be
of the basic form as in (31a) rather than as in (31b).

(31)a. "John be building a house" is true at <I,w> iff

       for some interval I' such that I is properly

       included in I', there is a possible world w'

       such that w and w' are identical up to and

       including I, and "John builds a house" is true

       at <I',w'>.

    b. "John be building a house" is true at <I,w> iff

       for some x such that x is a house, and for some

       interval I' such that I is properly inc uded in

       I', there is a possible world w' such that w

       and w' are identical up to and including I, and

       "John builds x" is true at <I',w'>.

One cannot adopt this proposal as well as the proposal
outlined for (24) above, as (32) below would require both wide

scope for the nonsequential reading and narrow scope for the unfinished objects of creation.

(32) John is building three houses.

A further objection raised by Parsons is that if the direct object of a verb of creation contains a tense, as in (33) below, Parsons claims that this tense in the scope of the progressive is interpreted relative to w´, and thus on Dowty's analysis (33) is true iff "John is building a house" is true.

(33) John is building a house that he will finish.

Higginbotham (1990) suggests that here the noun phrase might be forced to take wider scope than the progressive, but I suggest that no such move is required. I consider that the independence of tenses in relative clauses need not be captured by giving the relative clause widest scope and that tenses in relative clauses may always be free (see Enç (1987) for a syntactic account of tense binding and a treatment of relative clauses). It seems also that the "binding" conditions for world indices are stricter than those for time indices, according to mechanisms of narrative interpretation. Although a time-frame may persist across sentential boundaries, counterfactual situations must be re-established by modal expressions, as in the examples below; (see Karttunen

(1976) for counterfactual situations in narrative).

(34)a. When I was young I had a little dog. I took him

to play in the park and I taught him tricks.

   b. I wish I had a little dog. I <u>would</u> take him to

   play in the park and I <u>would</u> teach 'im tricks.

   c.# I wish I had a little dog. I take him to play in the

   park and I teach him tricks.

   d. I wish I had a little dog which would play in the

   park.

   e.# I wish I had a little dog which will play in the park.

There is no reason to suppose that the w index in a relative
clause is bound by a higher index.

But setting aside the problems for attempts to deal with
objects of verbs of creation by scope, there is another reason
for rejecting these moves, as Parsons persuasively argues.
During the time when someone is making a cake or building a
house, something which may eventually be a finished cake or
house does exist, and so the issue is really whether or not
the predicates cake and house are true of these unfinished
objects.

Examples such as those in (35) show that we certainly talk as
if unfinished objects satisfy the predicates true of their

potential finished forms, so there is no special intensional
problem with progressives of verbs of creation.

(35)a. Sam blended and mixed the cake, then put it in the
oven.
  b. Come and see the house - we've got the roof on now and
  next week I hope to get the outside walls up.
  c. I saw the portrait of old Mingus, but there's not much
  to see yet, just black outlines.

There is a similarity between unfinished objects and
unfinished events: we could say that where the cake refers to
a mixture of butter and sugar, the mixture is "named after"
its typical or expected finished form, just as a process may
be "named after" its typical potential outcome or finished
form. Unfinished objects sharpen the notion that the
predicate is, nevertheless, true of the object while
unfinished, for example, when I point at a mixture in a basin
and say "That's the cake". In the same way a progressive of a
telic predicate is true of an actual process.

A second consequence of embracing unfinished objects runs as
follows. If "John is building a house" is true at a time t,
not only is John doing something at t, he is doing something
to a house at t; that is, the participation of the house in
the event which we encode when we say that the house bears the

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Theme role also holds at t. Returning to the NeoDavidsonian
representations, if (36a) is true at t, each of (36b-d) is
also true at t, taking **build** here as a process predicate,
perhaps Pustejovsky's "build on" or "build at".

(36)a. John is building a house.

   b. Ee(Build(e))

   c. Agent(j,e)

   d. Ex(house(x) & Theme(x,e))

Returning now to (24), repeated below, I propose that in a
sequential event (37d) is not satisfied at the time of
evaluation of the progressive, because the Theme relation does
not hold of each cup of tea at t; in any case there may not be
three cups of tea poured at t so in a sense it may be false
that there are three cups of tea at t.

(37)a. John is drinking three cups cf tea.

   b. Ee(drink(e))

   c. Agent(j,e)

   d. Three x(cup of tea(x) & Theme(x,e))

This point does not extend directly to (38), because measure
phrases are rot bearers of thematic roles; rather, as I
outlined in Chapter 1, I take these phrases to be predicate
modifiers and suggest that the predicate in (38b) cannot have

a process reading; it just cannot be broken down into a process in progress now the way **build a house** can be broken down into "build at or onto an unfinished house".

(38)a. The river was rising ten feet.

   b. Ee(rise ten feet(e))

   c. Theme(the river,e)

Note also that where (39a) is true, (39b) is nevertheless unacceptable, I claim because the whole cake is not a bearer of the Theme role in the event at the stated time.

(39)a. John ate the whole cake, and he was on his third slice when I arrived.

   b.# John was eating the whole cake when I arrived.

In the foregoing discussion I have adopted Parson's position that unfinished objects of verbs of creation are present during the creation event, and that there is no particular problem of intensionality with the progressives of such verbs. I note here a couple of apparent counter-examples about which something different must be said. Consider first (40) (due to Angelika Kratzer and pointed out to me by Irene Heim p.c.).

(40)a. We were hiring a phonologist.

   b. We hired a phonologist.

Kratzer observes that (40b), but not (40a), entails the existence of a particular phonologist, which suggests that there is after all an intensional element in the progressive. Here I would say thet where (40a) is true but no phonologist was actually hired, (40a) is a futurative progressive in the past, comparable to (41a,b). An accurate non-futurative progressive description of the job search would be (41c,d), and here the intensionality noted above lies with the predicate.

(41)a. We were planning to hire a phonologist.

    b. We were going to hire a phonologist.

    c. We were looking for a phonologist.

    d. We were seeking a phonologist.

A slightly different kind of example involves the creation of representations of objects, as in (42).

(42)a. John was designing a house.

    b. John designed a house.

    c. John was drawing a house.

    d. John drew a house.

In these examples neither the progressive nor the simple past sentence entails the existence of a house, only of a design for a house or drawing of a house, finished or unfinished.

To sum up, I believe that all progressive predicates true of durative events are true of actual processes in train at the times at which the progressive sentence is true, and only of those processes. On this assumption, the sentences "John was building a house" and "John built a house" do not contain the same predicate, the former does not entail the latter, and the paradox is resolved. As I noted above, this position is taken by Vlach (1981), Parsons (1990) and Higginbotham (1990), and suggested by Bennett and Partee (1978 annotated). I remarked also that Bennett's (1977,1981) response to the paradox, using closed and open intervals, can be read as reducing to this view.

Now I have said above that **build** in "John is building a house" is to be given a process reading, thus implying that the process/accomplishment ambiguity is to be found in the predicate itself, which rather prejudges the issue I turn to next.

Where does the Process Reading Come From?

Other proponents of the two-predicate or progressive-as-activity solution to the imperfective paradox have argued that

the progressive is a function which takes any predicate and returns a process predicate as value; see Vlach (1981), Higginbotham (1990), Parsons (1990) and also writers in the aktionsarten literature, notably Verkuyl (1972,1989) for a similar view in which the progressive introduces atelicity, though there are varied proposals about the level at which this occurs. I shall argue that this response is insufficiently general, and that the ambiguity must indeed reside in the basic predicate.

It is generally assumed that the paradox arises only with the progressive, and that sentences with nonprogressive telic predicates entail complete events, as in (43).

(43)a. John built a house.

   b. John will build a house.

   c. John has built a house.

   d. John will have built a house.

However the partitive character of the progressive by which it is deemed to be an Aspect is also found with the verbs termed **aspectual verbs**, which are **start, begin, continue, keep, stop, cease** and **finish**. Now **keep, stop** and **finish** take only an **ing** complement, which is generally agreed to be participial rather than clausal or nominal; see Milsark (1972) and Emonds (1976). Plausibly an **ing**-form participial complement should be

identified with the progressive verb phrase, and thus ing

complements to aspectual verbs are in fact progressives.

Start, **begin**, and **continue**, however, take both progressive and

infinitival complements, the latter illustrated below.

(44)a. John started to build a house.

b. John began to build a house.

c. John continued to build the house although he ran out

of money.

There is a subtle difference between **start** and **begin** discussed

by Freed (1979), shown below.

(45)a. John started to speak, but passed out before he could

get a word out.

b.? John began to speak, but passed out before he could

get a word out.

The difference is that **start**, unlike **begin**, may be true of an

immediate prelude to an event which is not itself a part of

the event, and so "John began to speak" entails "John was

speaking" but "John started to speak" does not. Setting aside

this distinction, **start** may also be true of the first part of

an event in progress, and it is on that reading I wish to

consider it here. The obvious point at hand is that the

aspectual verbs evoke the same contrasting entailments as the

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progressive.

(46)a. John started to move → John moved

   b. John began to move → John moved

   c. John continued to laugh loudly → John laughed loudly

   d. John started to build a house ⇸ John built a house

   e. John began to build a house ⇸ John built a house

   f. John continued to build the house ⇸ John built the
      house

If we appeal to a process reading of progressive predicates to deal with the imperfective paradox, surely we ought to make the same response to (46), as the problem is clearly the same. The paradox is not merely imperfective, but more accurately aspectual.

The view that the complements to aspectual verbs must have a process reading (except **finish**, which must have an accomplishment as complement) is also supported by the sentences in (47), which are anomalous in the same way as the corresponding progressives above.

(47)a. # It began to rain for two hours.

   b. # The lake began to rise ten feet.

   c. # John continued to eat the whole cake.

   d. # Luke continued to eat fifty eggs.

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Note that examples like (47) and (48) below are acceptable on the "habitually" or "repeatedly" reading.

(48)   John continued to drink three cups of tea.

In the terms of tense-logical definitions, this is because, for example, it continued to be the case that "John drinks three cups of tea" is true, but on the habitual reading of the simple present tense rather than the reportive reading usually appealed to in tense-logical definitions. Habitual predications are true even when no event of the type described is in progress, and are irrelevant to the problem at hand.

These examples indicate that aspectual expressions (except **finish**) require process expressions as their complements. The approach mentioned above might be extended to the aspectual verbs, so that **start, begin**, etc and the progressive are all functions which return a process predicate as value, but note that if the proposed functions are to take predicates as arguments, the infinitival complements to aspectual verbs must be analysed as verb phrases rather than clauses, despite considerable evidence to the contrary; see for example Perlmutter (1970), who argues convincingly that the aspectual predicates with infinitival complements are Raising predicates, and therefore take sentential complements. Moreover, it leaves unexplained the resistance of predicates

discussed here to the process reading.

Recall also the comparison drawn above between unfinished
objects and unfinished events, where I proposed that
unfinished objects are "named after" their typical potential
finished forms just as processes may be "named after" their
typical potential outcomes or complete forms.   If, for
example, **cake** can be true of a mixture of butter and sugar
without any overt function to effect the change, merely by
polysemous adaptation of the word, surely the same thing can
be done with verbal predicates.

There is a serious remaining problem to which I have no real
solution, and which has caused other writers (see e.g. Bennett
and Partee (1978:16)) to reject the ambiguity analysis: we
cannot account for the fact that the process reading of telic
predicates appears only where forced by the aspectual context.
This fact is the strongest argument for the position that
aspectual expressions induce atelicity, rather than merely
selecting it.

The **case** can perhaps be compared with the predicates below,
which have a telic or atelic reading in the simple tense.   The
presence of **in** or **for** adverbials signals the telic or atelic
reading, but I hesitate to conclude that the adverbials induce
the appropriate classification of the predicate, although

Verkuyl (op.cit.) and others, who hold that a/telicity is a property of sentences, introduce the appropriate value as a feature on the adverbial, which percolates to the sentential node.

(49)a. John read the paper in an hour/for an hour.

　　b. John varnished the bookshelves in an hour/for an hour.

　　c. John cleaned the kitchen in an hour/for an hour.

Although the telic predicates mainly discussed above are very clumsy in the nonprogressive with **for** adverbials, I consider that the sentences below are not impossible.

(50)a.(?) That firm is hopeless. They built our school
　　　　　　extension for a year and then they went bankrupt and
　　　　　　left the site completely exposed to the weather.

　　b.　　John is in a terrible state. He got up before
　　　　　　dawn and wrote his thesis for an hour, then
　　　　　　he made a cake for ten minutes, used up all
　　　　　　the eggs and left the stuff all over the
　　　　　　kitchen, then he built a castle with Amy's
　　　　　　Lego for half an hour while I was trying to
　　　　　　do the housework.

This suggests that apparently telic predicates differ in how easily they may be adapted to form a predicate with a process

reading, but the phenomenon is not utterly dependent on aspectual expressions, and certainly not dependent on progressive morphology. Finally, I point out that when we hear talk of cakes, books and houses we never understand the unfinished object reading for the predicates unless we are signalled to do so: if Jones explains to Smith on the telephone that his speech is thick because he has a mouthful of cake, it won't occur to Smith that Jones has a mouthful of creamed butter and sugar, although he accepts such a substance as cake in the right circumstances. The fact that such predicates are not freely ambiguous doesn't refute the evidence that they are sometimes ambiguous, and I claim the same for telic verb phrases. I shall continue to assume that the telic/atelic ambiguity resides in the basic predicate.

The counterfactual analysis can now be seen, not as a truth condition for the progressive, but as a highly productive predicate formation rule generally used for purposeful human activity or processes where custom and experience support the classification of a process as of a typically goal-directed kind.

Higginbotham (1990) discusses an example which on my view also indicates that the decision to classify a process as goal-directed in a certain way is partly pragmatic. Assume that at the time (51a-c) are to be evaluated, Mary is sitting at her

easel and has just drawn an arc.

(51)a. Mary is drawing a spiral.

   b. Mary is drawing a fleur-de-lis.

   c. Mary is drawing a figure.

The mere drawing of an arc doesn't have any typical or
predictable further outcome (just many possilbe outcomes), so
an observer hesitates to assert either (51a) or (51b), but is
confident to assert the more general (51c). But if Mary tells
him that she intends to draw a fleur-de-lis, he can assert
(51b) and deny (44a). This is not to claim that Mary's
intentions enter directly into the truth conditions (which are
inherently vague), but only that the observer needs some
grounds for deciding what kind of process is going on. In the
given circumstance (51b) is certainly warrantably assertable,
but whether or not it is <u>true</u> is not clear to me because of
the vagueness of these predicates. What is going on certainly
seems to be a fleur-de-lis-drawing kind of process on the
grounds of Mary's testimony. If Mary has already drawn a
spiral, however, it is entailed that Mary was drawing a
spiral; if the past process was in fact part of a complete
spiral-drawing, a fortiori it was of the kind of processes
which are parts of complete spiral-drawings.
Even if she had originally intended to draw a fleur-de-lis,
"Mary was drawing a fleur-de-lis" is true only on the

futurative progressive reading, as in "Mary was drawing a

fleur-de-lis/was going to draw a fleur-de-lis but she changed

her mind".

Conclusion

I conclude, then, that progressives true of durative events

are always process predicates, but that the progressive

morphology itself is merely an indicator that a process

predicate is present, because it selects a process predicate

as complement. The progressive is not a function returning a

process predicate as value; the process reading of telic

predicates is indeed an ambiguity inherent in the basic

predicate, where other considerations discussed above allow

for a process reading. To return to the basic example, **build

a house** is ambiguous between a process predicate and a bounded

event predicate. An event which satisfies the first predicate

need not satisfy the second; "Jones was building a house" does

not **entail** "Jones built a house", and the paradox is resolved.

The progressive has the semantics proposed throughout this

thesis.

REFERENCES

Allen,R.L.   (1966)
The verb system of present-day American English
Amsterdam and New York: Mouton

Allwood,J. Andersson,L-G. and Dahl,O.   (1977)
Logic in Linguistics
Cambridge: Cambridge University Press

Bache,C.   (1982)
"Aspect and aktionsart: towards a semantic distinction"
Journal of Linguistics 18, 57-72

Baker,C.L.   (1989)
English syntax
Cambridge, Massachusetts: MIT Press

Barwise,J. and Cooper,R.   (1981)
"Generalized quantifiers and natural language"
Linguistics and Philosophy 4, 159-219

Bennett,M.   (1977)
"A guide to the logic of tense and aspect in English"
Logique et Analyse 20, 491-517

Bennett,M.   (1981)
"Of tense and aspect: one analysis"
in Tedeschi,P. and Zaenen,A. eds. (1981), 13-29

Bennett,M. and Partee,B.H.   (1978)
"Towards the logic of tense and aspect in English"
Indiana University Linguistics Club

Bolinger,D.   (1973)
"Ambient 'it' is meaningful too"
Journal of Linguistics 9, 261-270

Bolinger,D.L.   (1947)
"More on the present tense in English"
Language 23, 434-436

Burge,T.   (1974)
"Demonstrative constructions, reference and truth"
Journal of Philosophy 71, 205-223

Carlson,G.N.   (1977)
"A unified analysis of the English bare plural"
Linguistics and Philosophy 1, 413-457

Carlson,L. (1981)
"Aspect and quantification"
in Tedeschi,P. and Zaenen,A. eds. (1981), 31-64

Castaneda,H-N. (1967)
"Comments on D.Davidson's 'The Logical Form of Action
Sentences'"
in Rescher,N ed.   91967)
The Logic of Decision and Action
Pittsburgh: University of Pittsburgh Press

Chomsky,N. (1975)
"Questions of form and interpretation"
Linguistic Analysis 1, 75-109

Comrie,B. (1976)
Aspect
Cambridge: Cambridge University Press

Comrie,B. (1985)
Tense
Cambridge: Cambridge University Press

Crystal,D. (1966)
"Specification of English tenses"
Journal of Linguistics 2, 1-133

Dagut,M.B. (1977)
"A semantic analysis of the 'simple'/'progressive' dichotomy
of the English verb"
Linguistics No.202, 47-61

Dahl,O. (1981)
"On the definition of the telic-atelic (bounded-nonbounded)
distinction"
in Tedeschi,P. and Zaenen,A. eds. (1981), 79-90

Davidson,D. (1967)
"The Logical Form of Action Sentences"
in Rescher,N (1967)
The Logic of Decision and Action
Pittsburgh: University of Pittsburgh Press

Declerck,R. (1979)
"On the progressive and the 'Imperfective Paradox'"
Linguistics and Philosophy 3, 267-272

Dillon,G.L. (1973)
"Perfect and other aspects in a Case grammar of English"
Journal of Linguistics 9, 209-383

Diver,W.   (1963)
"The chronological system of the English verb"
Word 19, 141-181

Dowty,D.   (1979)
Word meaning and Montague grammar
Dordrecht, Holland: Reidel

Dowty,D.   (1989)
"On the semantic content of the notion of 'thematic role'"
in Chierchia,G. Partee,B.H. and Turner,R. eds.
Properties, types and meaning 2
Dordrecht, Holland: Kluwer

Dowty,D.R.   (1977)
"Toward a semantic analysis of verb aspect and the English
'imperfective' progressive"
Linguistics and Philosophy 1, 45-77

Dowty,D.R.   (1982)
"Tenses, time adverbs and compositional semantic theory"
Linguistics and Philosophy 5, 23-55

Emonds,J.   (1975)
"Arguments for assigning tense meanings after certain
syntactic transformations apply"
in E.L.Keenan ed.
Formal semantics of natural language
Cambridge: Cambridge University Press

Emonds,J.   (1976)
A transformational approach to English syntax
New York: Academic Press

Freed,A.F.   (1979)
The semantics of English aspectual complementation
Dordrecht: Reidel

Goldsmith,J. and Woisetschlaeger,E.   (1982)
"The logic of the English progressive"
Linguistic Inquiry 13, 79-89

Grice,H.P.   (1975)
"Logic and conversation"
in P.Cole and J.L.Morgan eds.
Speech acts
New York: Academic Press

Grice,H.P.   (1978)
"Further notes on logic and conversation"
in P.Cole ed.
Pragmatics
New York: Academic Press

Gruber,J.   (1967)
Lexical structures in syntax and semantics
Linguistic Series No.25
Amsterdam: North-Holland

Guenther,F.   (1977)
"Remarks on the present perfect in English"
in C.Rohrer ed.
On the logical analysis of tense and aspect
Tübingen: Tübinger Beiträge zur Linguistik (TBL)

Hatcher,A.G.   (1951)
"The use of the progressive form in English"
Language 28, 254-280

Heim,I.R.   (1982)
The semantics of definite and indefinite noun phrases
Doctoral dissertation: University of Massachusetts at Amherst

Heny,F.   (1982)
"Tense, aspect and time adverbials Part II"
Linguistics and Philosophy 5, 109-154

Higginbotham,J.   (1990)
"The Imperfective Paradox"
ms. MIT

Higginbotham,J.T.   (1983)
"The logic of perceptual reports: an extensional alternative
to Situation Semantics"
Journal of Philosophy 80, 100-127

Higginbotham,J.T.   (1985)
"On Semantics"
Linguistic Inquiry 16, 547-594

Higginbotham,J.T.   (1987)
"Indefiniteness and predication"
in Reuland,E.J. and ter Meulen,A.G.B. eds.
The representation of (in)definiteness
Cambridge, Massachusetts: MIT Press

Higginbotham,J.T.   (1989)
"Elucidations of Meaning"
Linguistics and Philosophy 12, 465-517

Holisky,D.A. (1981)
"Aspect theory and Georgian aspect"
in Tedeschi,P. and Zaenen,A. eds. (1981), 127-144

Hornstein,N. (1990)
"As times go by: tense and universal grammar"
Cambridge, Massachusetts: MIT Press

Huddleston,R. (1984)
Introduction to the grammar of English
Cambridge: Cambridge University Press

Jackendoff,R. (1972)
Semantic interpretation in generative grammar
Cambridge, Massachusetts: MIT Press

Jackendoff,R. (1983)
Semantics and cognition
Cambridge, Massachusetts: MIT Press

Jackendoff,R. (1990)
"Parts and boundaries"
Brandeis University: ms.

Jespersen,O. (1932)
A modern English grammar on historical principles Part IV
London: George Allen and Unwin

Johnson,M.R. (1981)
"A unified temporal theory of tense and aspect"
in Tedeschi,P. and Zaenen,A. eds. (1981), 145-175

Joos,M. (1964)
The English verb
Madison and Milwaukee: University of Wisconsin Press

Kamp,H. (1979)
"Events, instants and temporal reference"
in R.Bäuerle, U.Egli and A von Stechow eds.
Semantics from different points of view
Berlin and Heidelberg: Springer-Verlag

Karttunen,L. (1976)
"Discourse referents"
in McCawley,J. ed. (1976)
Notes from the linguistic underground
New York: Academic Press

Karttunen,L. (1976)
"Discourse referents"
in McCawley,J. ed.
Syntax and semantics 7
New York: Academic Press

Kenny,A. (1963)
Actions, emotions and will
Humanities Press

Kratzer,A. (1988)
"Stage-level and individual-level predicates"
in M.Krifka ed. (1988)
Genericity in natural language
Proceedings of the 1988 Tübingen Conference
University of Tübingen

Kripke,S.A. (1980) (revised from 1972 version)
Naming and Necessity
Cambridge, Massachusetts: Harvard University Press

Kucera,H. (1981)
"Aspect, markedness and t$_o^\cdot$
in Tedeschi,P. and Zaenen,A. eds. (1981), 177-189

Ladusaw,W.A. (1982)
"Semantic constraints on the English partitive construction"
in Proceedings of the First West Coast Conference on Formal
Linguistics, 231-242

Lakoff,G. (1970)
Irregularity in syntax
New York: Holt Rinehart and Winston

Langacker,R.W. (1978)
"The form and meaning of the English auxiliary"
Language 54, 853-882

Langacker,R.W. (1987)
"Nouns and verbs"
Language 63, 53-94

Leech,G.N. (1969)
Towards a semantic description of English
Bloomington, Indiana: Indiana University Press

Leech,G.N. (1971)
Meaning and the English verb
London and New York: Longman

Lepore,E. and McLaughlin,B. eds. (1985)
Actions and events
Oxford and New York: Basil Blackwell

Lycan,W.G. (1984)
Logical form in natural language
Cambridge, Massachusetts: MIT Press

Lyons,J. (1977)
Semantics
Cambridge: Cambridge University Press

McCawley,J.D. (1971)
"Tense and time reference in English"
in C.J.Fillmore and D.T.Langendoen eds.
Studies in linguistic semantics
New York: Holt Rinehart and Winston

McCawley,J.D. (1981)
Everything that linguists have always wanted to know about
logic but were ashamed to ask
Chicago: University of Chicago Press

McCawley,J.D. (1981)
"Notes on the English present perfect"
Australian Journal of Linguistics 1, 81-90

McConnell-Ginet,S. (1982)
"Adverbs and logical form"
Language 58, 144-184

Milsark,G. (1972)
"Re: Doubl-ing"
Linguistic Inquiry 3, 542-548

Mittwoch,A. (1988)
"Aspects of English aspect: on the interaction of perfect,
progressive and durational phrases"
Linguistics and Philosophy 11, 203-254

Mourelatos,A.P.D. (1978)
"Events, processes and states"
Linguistics and Philosophy 2, 415-434

Neale,S. (1990)
Descriptions
Cambridge, Massachusetts: MIT Press

Palmer,F.R. (1987)
The English verb (second edition)
London and New York: Longman

Parsons,T.   (1980)
"Modifiers and quantifiers in natural language"
Canadian Journal of Philosophy Supp Vol VI, 29-60

Parsons,T.   (1989)
"The progressive in English: events, states and processes"
Linguistics and Philosophy 12, 213-241

Parsons,T. (forthcoming 1991)
Events in the semantics of English
Cambridge, MA: MIT Press

Partee,B.H.   (1973)
"Some structural analogies between tenses and pronouns in English"
Journal of Philosophy 70, 601-609

Partee,B.H.   (1984)
"Nominal and temporal anaphora"
Linguistics and Philosophy 7, 243-286

Perlmutter,D.M.   (1970)
"The two verbs BEGIN"
in Jacobs,R.A. and Rosenbaum,P.S. eds.
Readings in English transformational grammar
Waltham, Massachusetts: Ginn

Peterson,P.L.   (1979)
"On the logic of 'few', 'many', and 'most'"
Notre Dame Journal of Formal Logic 20, 155-179

Pustejovsky,J.   (1988)
"Event semantic structure"
ms. Brandeis.

Quine,W.V.O.   (1960)
Word and object
Cambridge, Massachusetts: MIT Press

Reuland,E.J. and ter Meulen,A.G.B. eds. (1987)
The representation of (in)definiteness
Cambridge, Massachusetts: MIT Press

Richards,B.   (1982)
"Tense, aspect and time adverbials Part I"
Linguistics and Philosophy 5, 59-107

Ryle,G.   (1949)
The concept of mind
London: Barnes and Noble

Sadock,J.M. (1978)
"On testing for conversational implicature"
in P.Cole ed.
Pragmatics
New York: Academic Press

Scheffer,J. (1975)
The progressive in English
Amsterdam: North-Holland

Schubert,L.K. and Pelletier,F.J. (1987)
"Problems in the representation of the logical form of
generics, plurals and mass nouns"
in LePore,E. ed.
New directions in semantics
New York: Academic press

Smith,C.S. (1983)
"A theory of aspectual choice"
Language 59, 479-501

Sweet,H. (1898)
New English grammar Part II
Oxford: Oxford University Press

Taylor,B. (1977)
"Tense and continuity"
Linguistics and Philosophy 1, 199-220

Tedeschi,P. and Zaener,A. eds. (1981)
Tense and aspect
Syntax and semantics series Vol 14
New York: Academic Press

Tedeschi,P.J. (1981)
"Some evidence for a Branching-Futures semantic model"
in Tedeschi,P. and Zaenen,A. eds. (1981), 239-269

Tichy,P. (1985)
"Do we need interval semantics?"
Linguistics and Philosophy 8, 263-282

Vendler,Z. (1967)
Linguistics in philosophy
Ithaca, New York: Cornell University Press

Verkuyl,H. (1972)
On the compositional nature of the aspects
Dordrecht: Reidel

Verkuyl,H.J. (1989)
"Aspectual classes and aspectual composition"
Linguistics and Philosophy 12, 39-94

Vlach,F. (1981)
"The semantics of the progressive"
in Tedesci,P. and Zaenen,A. eds. (1981), 271-292

Washington,C.G. (1987)
Discourse interpretation and the temporality of states and
events
MS dissertation: MIT

Webster,N. (1789)
Dissertations on the English Language
Menston, England: Scolar Press

Woisetschlaeger,E.F. (1977)
A semantic theory of the English auxiliary system
Doctoral dissertation: MIT